JULY '61

MODERN TEXTILES MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

FABRICS

FINISHES

Belding Heminway's HAROLD A. JOHNSTON—more growth is expected—story page 21

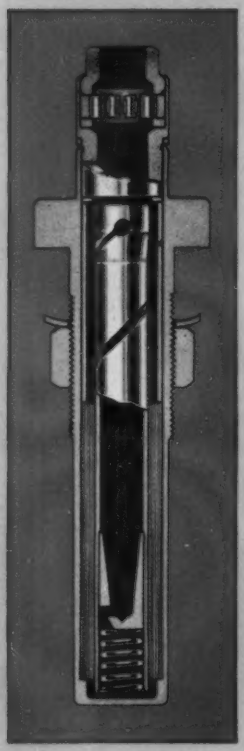
BROADENING MARKETS FOR LAMINATES

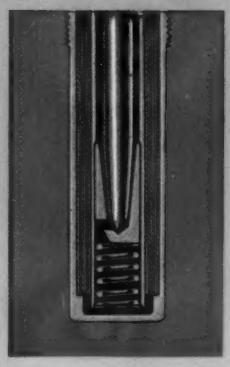
New laminating machine

Better dyes for polyesters

The market for support stockings

AND 10 MORE TIMELY ARTICLES AND USEFUL REPORTS





DA42

The Draper DA-4-2 Anti-friction Spindle is designed to run at higher speeds with heavier loads and lengthened oiling cycles. This spindle can be furnished to handle a full range of counts in both filling and warp yarns. The DA-4-2 Spindle features a one-piece steel base and a roller bearing bolster with coil spring dampening action. For the finest in spinning combinations, specify — Draper Bobbins, Rings and Spindles. For information, consult a Draper representative.

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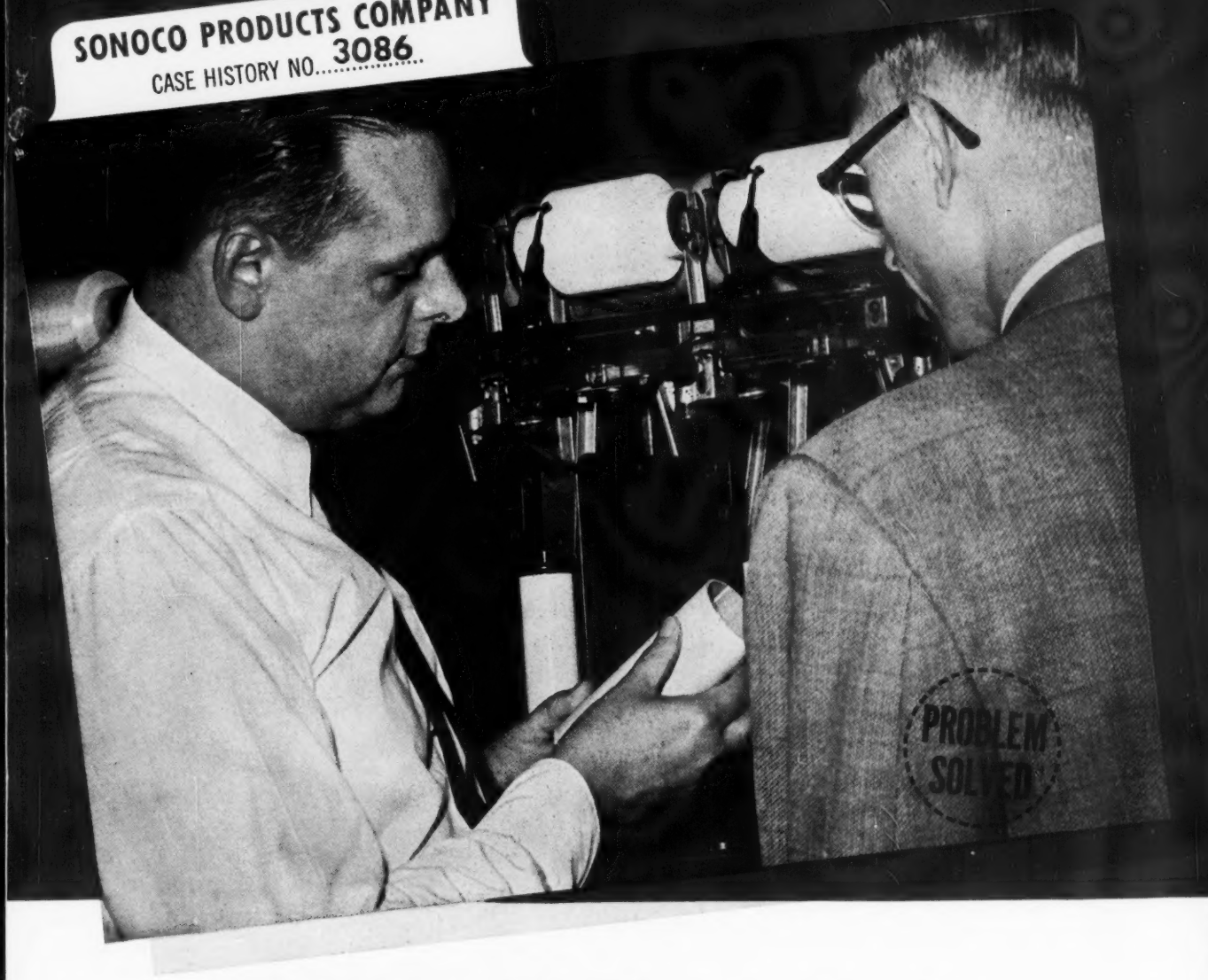
SONOCO PRODUCTS COMPANY
CASE HISTORY NO. 3086



PROBLEM: Develop carriers for stretch nylon yarn

When stretch nylon yarn was introduced, there was a basic need for a completely new type yarn carrier.

Stain was a problem in the processing. Additional means of yarn identification and a collapsible carrier that would allow the yarn to relax uniformly throughout the entire package were required.

In solving this problem Sonoco developed a number of new tubes. Critical dimensional requirements were met and stainproof surfaces were provided. An adequate number of yarn identification methods, including lacquer tips, scores and notches, were made available. And, because the strength of the tubes is rigidly controlled in manufacture, they collapse properly and aid considerably in the production of uniform finished yarn. These Sonoco developments eliminated the need for more expensive methods in processing stretch nylon.

Technical service of this type is an added benefit when you buy from Sonoco. *Only Sonoco*, in its field, provides the continuous research, product improvement and integrated manufacturing needed to meet the ever-changing techniques of the textile industry. *Let Sonoco's more than 60 years' experience help you!*

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Products for Textiles

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3086

MODERN
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July, 1961 Vol. 42, No. 7

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Established 1925

* * *

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Synthetic Organic Chemical Manufacturers Association ..... 41 E. 42nd St., New York

Textile Distributors Institute, Inc. ..... 469 Seventh Ave., New York

CONTENTS

PUBLISHER'S VIEWPOINT

The Winds of Change in Textiles 19

SPECIAL FEATURES

Belding Heminway Branches Out 21
by Jerome Campbell

Amacron Dyes for Polyester Fabrics 24
by Herman P. Bauman

Hydro-Pruf Silicone Finishes 28

More Highlights of the Knitting Show 30

Widening Profit Possibilities for Fabric-Foam Laminates 37

1960 Woven Cotton Textiles Down 38

Support Stockings—Part II 39
by George A. Urlaub

Emco Laminating Machine 43

Restraint on Output Held Vital 44
by Irving Roaman

PAPERS OF AATT

The Expert Witness in Arbitration and Litigation 47
by J. B. Goldberg

DEPARTMENTS

Worldwide Textile News 20

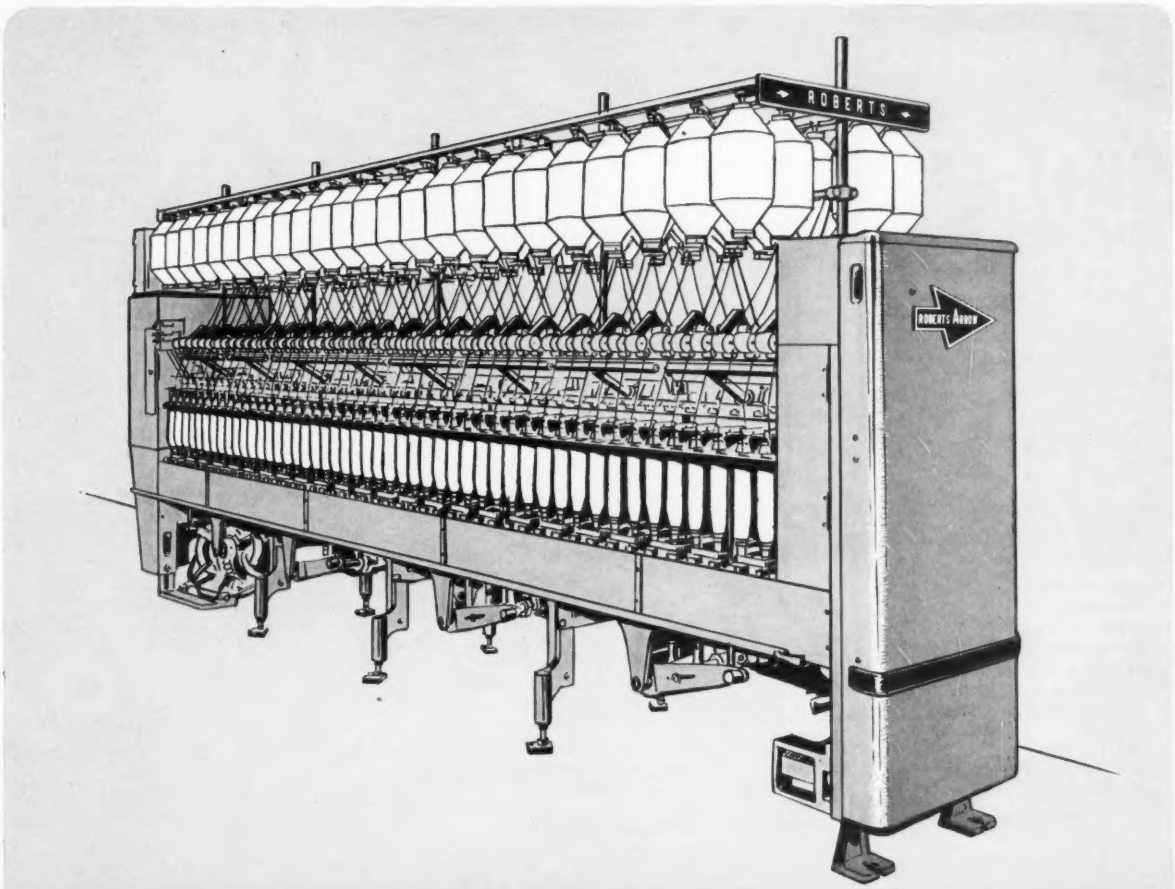
TDI News and Comment 44

Textile Newsbriefs 53

Yarn Prices 55

Calendar of Coming Events 70

Index to Advertisers 70



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ADVANCED ENGINEERING DESIGN
ATTRACTIVE LOW PRICE
PRACTICAL MILL OPERATION

1200 NEW ROBERTS ARROW Spinning Frames with some 380,000 spindles have been installed in mills since their introduction four years ago; dramatic testimony that Arrow Spinning does the job to mill satisfaction!

RUGGED, ALL BALL BEARING and free of gadgetry and frills, new Arrow Spinning has been refined and streamlined, and engineered for peak performance and dependability. Many technological improvements have been incorporated.

HIGHEST YARN QUALITY! With new FC Drafting cotton system spinning, Arrow Frames consistently spin stronger, more even yarns. Proper fiber control, gripping and weight assure superior yarn quality.

INCREASED SPEEDS! Spindle speeds to 15,000 r.p.m., dynamic balancing of all components, and maximum use of ball bearings provide increased production and economy, with smooth and dependable performance.

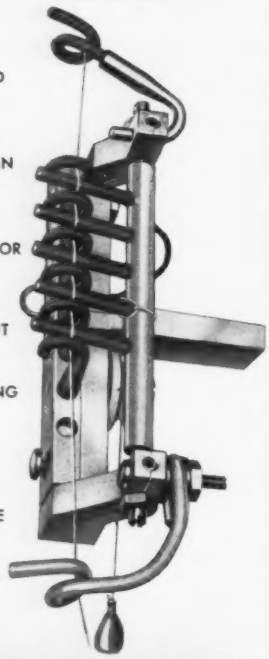
WIDER VERSATILITY! Coarse or fine yarns from 2s to 120s count, cotton or synthetics and blends, and a broad range of drafts from 10 to 60 are successfully handled. New Arrow Spinning spins short or long staple cotton, and synthetics from 1 1/16" to 3". Changes in fiber, yarn number, draft, twist and bobbin build are quickly accomplished.

REDUCED CLEANING, MAINTENANCE! Strictly functional, new Arrow Spinning has been engineered for trouble-free operation with reduced cleaning and maintenance. Simplification of components, and fewer parts provide quick, easy cleaning.

ROBERTS COMPANY
SANFORD, NORTH CAROLINA

HEANIUM®

"PAT-TEND"



- EASY TO LOAD
- CANNOT BECOME UNTHREADED
- EASY TO CLEAN
- NO SQUEEZE OR PINCH ACTION
- ADJUSTABLE FOR DIFFERENT YARNS
- QUICK TO DAMPEN INPUT TENSION VARIATIONS
- LONG WEARING HEANIUM® PARTS
- CONSTANT OUTPUT TENSION
- MOVING GATE SECTION PIVOTED FOR DRAG FREE ACTION

The Heany PAT-TEND is a new concept that provides complete adjustability for latitudinal and longitudinal tensions. It is completely adaptable to high or low yarn speeds or tensions and its "no drag" action gives quick positive compensation resulting in a perfect package.

PAT-TEND can be used in a vertical or horizontal position and solves a wide variety of tensioning problems due to yarn peculiarities and package deformations.

TENSION SETTINGS

PLUS tension position for heavy deniers

NEUTRAL tension position for medium deniers

MINUS tension position for 0 or low twist yarns

Initial tensioning is increased as the adjustable "hook" member is set from right to left as indicated above. Uniform output tension is automatically maintained by the desired weight hung over the pulley.

HEANY INDUSTRIAL CERAMIC CORP.
NEW HAVEN 3, CONNECTICUT

Southern Representatives: R. L. Carroll, P. O. Box 1676, Greenville, S. C.

Beaunit Gets Du Pont Processes

Beaunit Mills, Inc., has acquired exclusive rights for the use in the U.S. of secret, technical information on the latest processes as used by Du Pont for the production of the following specialty rayon textile yarns: thick and thin, fashion slub, flat, hollow, fiber "E" and high tenacity textile yarns.

The agreement with respect to these specialty yarns also covers certain processes and products of a related character not yet commercialized by Du Pont, but which are considered to be of commercial promise.

Roberts Names Canadian Agent

Roberts Co. has appointed Rudel Machinery Co., Ltd., of Montreal and Toronto, Canada, as its exclusive sales agent in Canada for all Roberts' yarn making machinery. Robert's president, R. E. Pomeranz, said that the new affiliation brings to Roberts the broad experience of the Canadian textile industry possessed by Rudel so that both companies can provide improved machinery and service to the Canadian industry. Rudel's offices are at 980 St. Antoine St., Montreal and at 278 Lakeshore Blvd., East, Toronto.

New Zefran Type

Dow Chemical Co. is offering a new development in Zefran—Type 1207. Designed specifically to replace Type 1203 in blends with wool, the new fiber has improved dyeing characteristics said to permit deeper shades and a broader range of colors. Mills are now starting to use the improved type in both woven goods and knitted outerwear for Fall 1962 men's, women's and children's wear markets. Type 1207 is said to be comparable in price to Type 1203.

Holt Forms Company

Bryce R. Holt, Jr., has resigned from Peerless Woolen Mills, a division of Burlington Industries, to form the Holt Textile Sales Co. in Dalton, Ga. The new firm will sell manmade and natural textile yarns, fibers and other related products. It will also represent Rocky Creek Mills on tufting yarn sales.

Form New Kenaf Firm

Formation of a new corporation, North Atlantic Kenaf International Inc., West Palm Beach, Fla., for the production and sale of seed, machinery and fiber, has been announced by Joseph F. Dryer, Jr., president. The new firm will have the same management and personnel which operated North Atlantic Kenaf Corp. of Havana, Cuba. The Cuban firm was taken over by the Castro administration.

Fiber Spinning Lab

Fabric Research Laboratories, has set up equipment for experimental spinning of synthetic fibers at Dedham, Mass. The new laboratory is capable of both melt and solvent (dry) spinning which includes nylon, polypropylene, polyethylene, polyester, polyvinyl alcohol, acetate and acrylic fiber spinning methods.

Allied Chemical Offices

Allied Chemical Corp. will construct a modern three-story office building at Morristown, N. J. The 250,000-square foot building will be occupied by engineering and administrative personnel of various divisions, and will be completed by mid-1962.

Tufted Shipments Rising

Final figures are expected to show the value of tufted textile product shipments in 1960 rose 15% over those in 1959, according to the Tufted Textile Manufacturers Association. It is anticipated the 1960 shipments will amount to $515,317,000 as against $447,-989,000 in the previous year.

New Du Pont Dyeing Lab

Du Pont's Dyes and Chemical Division will establish at Charlotte, N. C., a new dyeing and textile finishing plant to provide improved technical services to customers in the south. The new lab will be housed in a one-story building adjacent to the division warehouses. The facility will be equipped and staffed to service such Du Pont-developed processes as the Pad-Steam, Thermosol coloration of synthetic fibers, sponge core dyeing and Unifog spray finishing. The Dyes and Chemicals Division now has 93 employees in the southern district working out of two offices, one in Charlotte and the other in Atlanta, Ga.

Changes in Creslan Marketing

American Cyanamid Co.'s Fibers Division has realigned functions and responsibilities in its marketing department to provide better coordination of sales and merchandising for its Creslan acrylic fiber. William H. Kieffer, director of marketing, heads the coordinated sales and merchandising organization, with Martin B. Friedman general merchandizing manager and James B. McDonald general sales manager.

Acrilan Price Cut

Chemstrand Corp. recently cut the price of its Acrilan acrylic carpet staple fiber by six cents, effective June 1. The fiber, 15 denier bright and semi-dull is now 89 cents a pound. It was formerly 95 cents.

CHARLTON WOOLEN COMPANY USES

CHARLTON CITY, MASS.

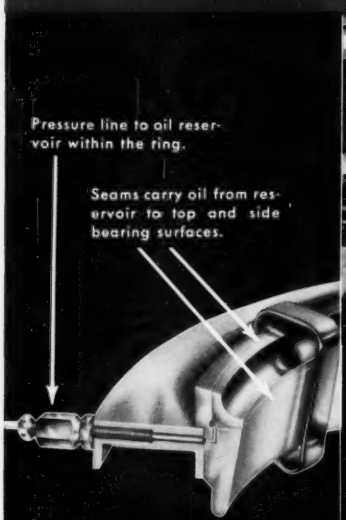
HERR "M" TYPE CONICAL RINGS
WITH AUTOMATIC PRESSURE LUBRICATION

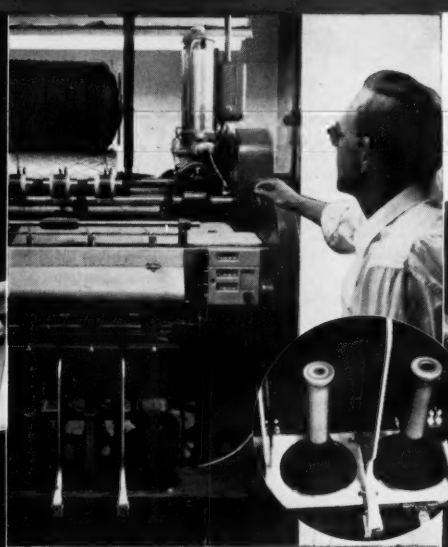
For Better Oil distribution (minimum amount)
— on the path of the traveler

No oil scattering
— on the machine to create maintenance problems
— on the yarn to degrade quality

Benefits

LONGER LIFE OF RINGS AND TRAVELERS
HIGHER SPEED OPERATIONS
IMPROVED PRODUCT
REDUCED OPERATING COST





With Herr "M" Type Rings and Controlled Automatic Pressure Lubrication.
"YOU DON'T HAVE TO DEPEND ON THE TRAVELER TO SPREAD THE OIL" says Bob Gard.

Bob Gard, who is overseer of spinning, inspects frames that have been in operation for almost three years.

Illustrations show one of the modern installations at Charlton Woolen Company, Charlton City, Mass., manufacturer of coatings and snow suiting fabrics.

Here's how the system operates: Herr "M" type conical rings contain an oil reservoir running completely around the ring. From this reservoir, seams carry the oil by capillary action to the top and side bearing surfaces of the ring so that the paths of the traveler are continuously lubricated...but with a minimum of oil.

The reservoir is supplied with oil by an automatic pressure system that can be set to give just the right amount of oil ... eliminating troublesome waste.

After the pump cycle has been established, no supervision is needed. Higher speeds and improved products are possible.

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HERR MANUFACTURING CO., INC.
308 FRANKLIN STREET • BUFFALO 2, N.Y.

For Spinning and Twisting Worsted • Woolen • Rayon • Nylon • Orlon • Fiberglass and Blended Yarns of all Types

* the ONE product finish...

which gives to such fabrics as:

Dacron*-62-Dacron 54 Crepe
Dacron-Cotton Batiste
Dacron-Cotton Broadcloth
Dacron-Rayon combinations

- **Soft and mellow hand.**
- **Freedom from lint in finish room.**
- **Ease of handling by the cutter, i. e., no clinging of foreign matter.**
- **Ease of layout on cutter's table.**
- **Increased absorption for goods to be overprinted.**
- **To the consumer, a durable static-free garment which is more comfortable to wear.**

* Dupont trade mark

ONYX CHEMICALS ®

ONYX CHEMICAL CORPORATION
190 Warren Street, Jersey City, New Jersey

Celanese Head Urges More U. S. Aid for Latin America

The United States Government is urged to "substitute prompt action for high hopes" in helping Latin American countries achieve greater prosperity through growth of private, free enterprise. Harold Blancke, president of Celanese Corp. of America, told a National Industrial Conference Board audience that the U.S. should do three things to aid Latin America:

1—Work out at inter-governmental levels a program of long-term, low interest loans to finance development of transportation, communication, water supply and other basic utilities and service; 2—provide direct, medium loans to private companies or underwrite or guarantee such loans, and 3—revise the U.S. corporate tax structure to allow greater freedom and incentive for the international movement of investment money and earnings and thus reverse a fiscal policy that actively discourages U.S. enterprise abroad.

Enka Offers New Industrial Yarn

American Enka Corp. has introduced a new high modulus industrial yarn called "Suprenka Hi Mod". It is currently in commercial production at the company's Lowland, Tenn., plant. Enka reports that this new high-tenacity rayon yarn has been engineered for end-uses where high modulus, negligible wet or thermal shrinkage, and high strength are required. Suprenka Hi Mod is said to provide excellent stability during processing because of its low shrinkage when heated or when moistened. In use the new yarn has low growth under load.

Over the past six months, Enka has widely sampled its new high-modulus yarn for a number of industrial end uses. Manufacturers of V-Belts are reported to like the new yarn because of its good dimensional stability. It was pointed out that the high strength of the new yarn permits reduction in the amount of yarn used in these belts. These strengths represent a minimum of 5.0 grams per denier.

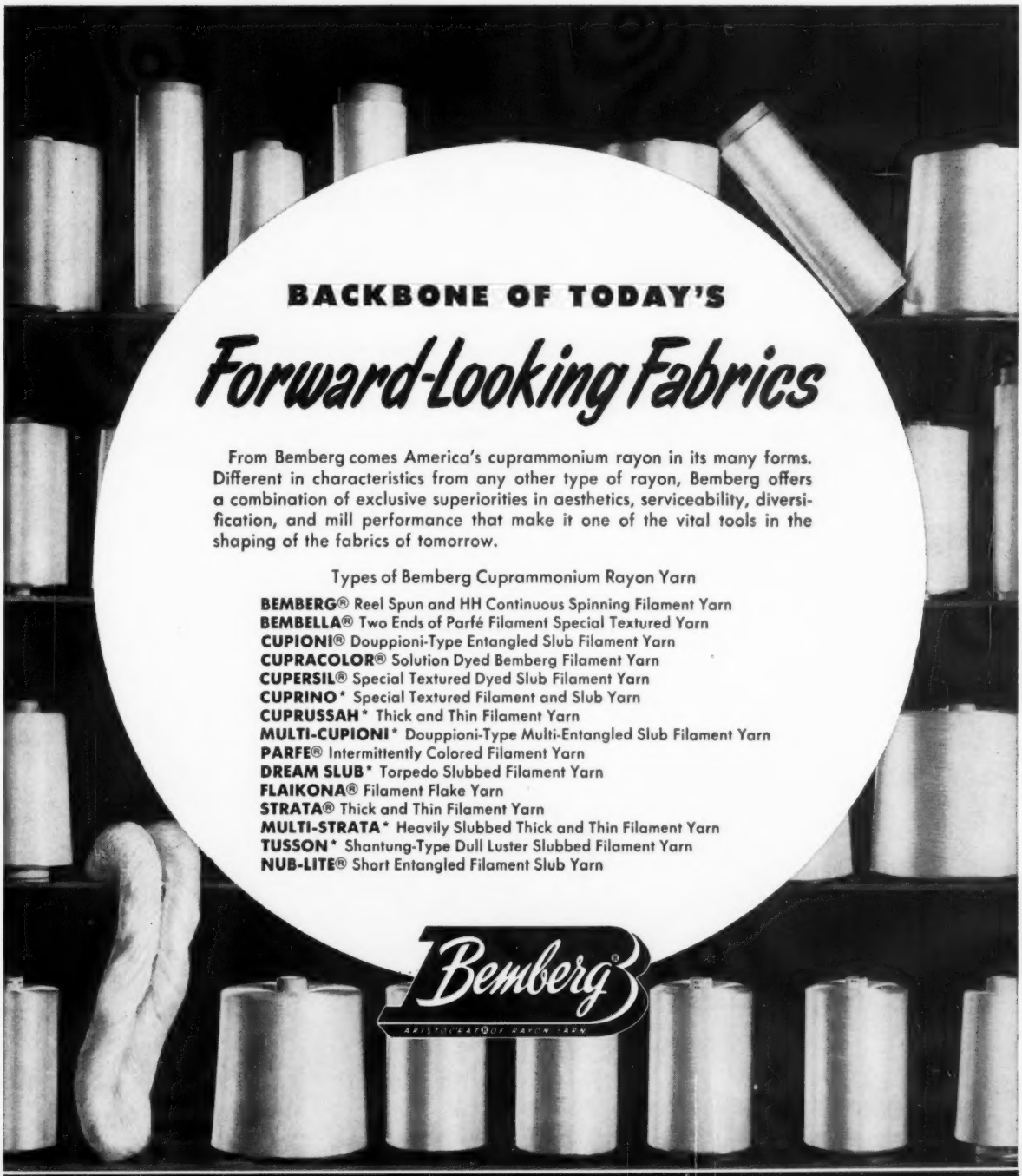
Other end-use areas in which Suprenka Hi Mod is being sampled include conveyor belts, ducks, radiator hose, carpets and tapes. Prices for all packages are: 1100/1100 at 67¢; 1650/1644 at 61¢; and 2200/2160 at 58¢. Suprenka Hi Mod is the fourth major rayon industrial yarn offered by Enka. The others are: Enka 5000 tire yarn (Tyrex), Suprenka "M" and "MS" and Suprenka 2000.

Canadian Financing Firm

James Talcott, Inc., U.S. industrial finance company, and Industrial Acceptance Corp., Canadian finance firm, have formed a jointly-owned affiliate, Industrial-Talcott Ltd. in Montreal, Canada, to provide commercial financing, factoring, industrial leasing and other financial services to Canadian industry.

Talcott, founded in 1854, processed more than $1,-275,000,000 in receivables during 1960. Industrial Acceptance has assets of $600,000,000 and capital and surplus of $88,000,000.

J. H. Ranahan, IAC president, heads the new firm, with R. R. Campbell, Talcott regional vice president in Chicago, acting as vice president and general manager. Directors include four officers from each parent firm. Herbert R. Silverman, Talcott president, described the potential Canadian market for commercial financing and factoring as "outstanding."



BACKBONE OF TODAY'S

Forward-Looking Fabrics

From Bemberg comes America's cuprammonium rayon in its many forms. Different in characteristics from any other type of rayon, Bemberg offers a combination of exclusive superiorities in aesthetics, serviceability, diversification, and mill performance that make it one of the vital tools in the shaping of the fabrics of tomorrow.

Types of Bemberg Cuprammonium Rayon Yarn

BEMBERG® Reel Spun and HH Continuous Spinning Filament Yarn
BEMBELLA® Two Ends of Parfé Filament Special Textured Yarn
CUPIONI® Douppioni-Type Entangled Slub Filament Yarn
CUPRACOLOR® Solution Dyed Bemberg Filament Yarn
CUPERSIL® Special Textured Dyed Slub Filament Yarn
CUPRINO* Special Textured Filament and Slub Yarn
CUPRUSSAH* Thick and Thin Filament Yarn
MULTI-CUPIONI* Douppioni-Type Multi-Entangled Slub Filament Yarn
PARFE® Intermittently Colored Filament Yarn
DREAM SLUB* Torpedo Slubbed Filament Yarn
FLAIKONA® Filament Flake Yarn
STRATA® Thick and Thin Filament Yarn
MULTI-STRATA* Heavily Slubbed Thick and Thin Filament Yarn
TUSSON* Shantung-Type Dull Luster Slubbed Filament Yarn
NUB-LITE® Short Entangled Filament Slub Yarn

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ARISTOCRAT OF RAYON YARN

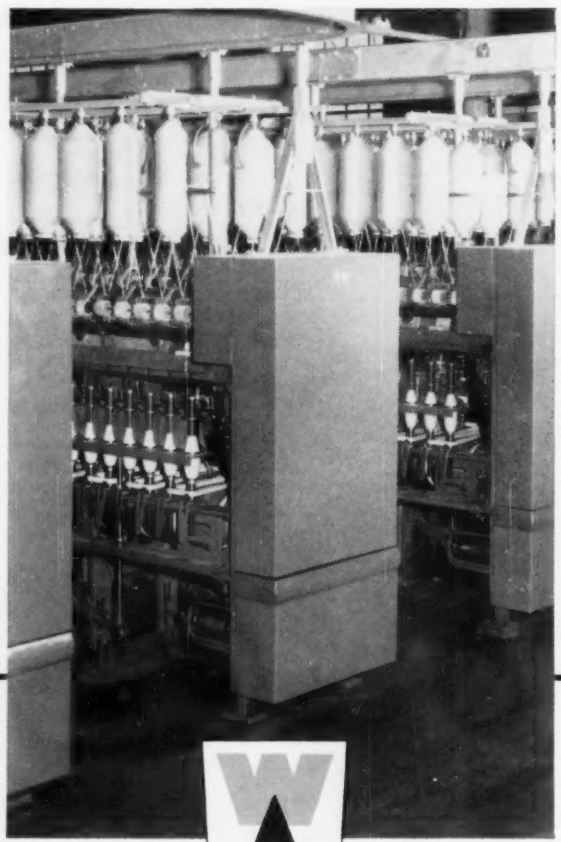
BEAUNIT MILLS, Inc., Fibers Division
Main Office: 261 Fifth Avenue, New York 16, N. Y. Plant: Elizabethton, Tennessee

*Reg. app. for.

"BEMBERG" IS THE REGISTERED TRADE-MARK FOR AMERICAN BEMBERG CUPRAMMONIUM RAYON YARN

". . . in cotton spinning, Whitin has built more of the spinning frames, currently in operation in the United States, than all other makers combined"

Millions of Whitin-built spindles are in production today — dramatic proof of Whitin's ability to build the kind of spinning the industry wants. As a case in point, consider our new Model N Spinning Frame. Its quick acceptance again spotlights Whitin's alertness to the needs of the modern spinner. Only Whitin, with century-long experience and unequalled facilities, could have produced such a frame. It's a functional spinning frame — cut trim and lean — a compact combination of essential features, many tempered by mill test — others, new as tomorrow — deftly coordinated into a tough, hard-to-beat frame — a frame designed to spin your yarn competitively.



Model N Spinning at WHITIN Texas Textile Mills, Inc.

But, best of all, the price is cut trim and lean to match! The Model N can help you keep "the competitive edge." Your Whitin Representative can tell you how. Why not call him today?

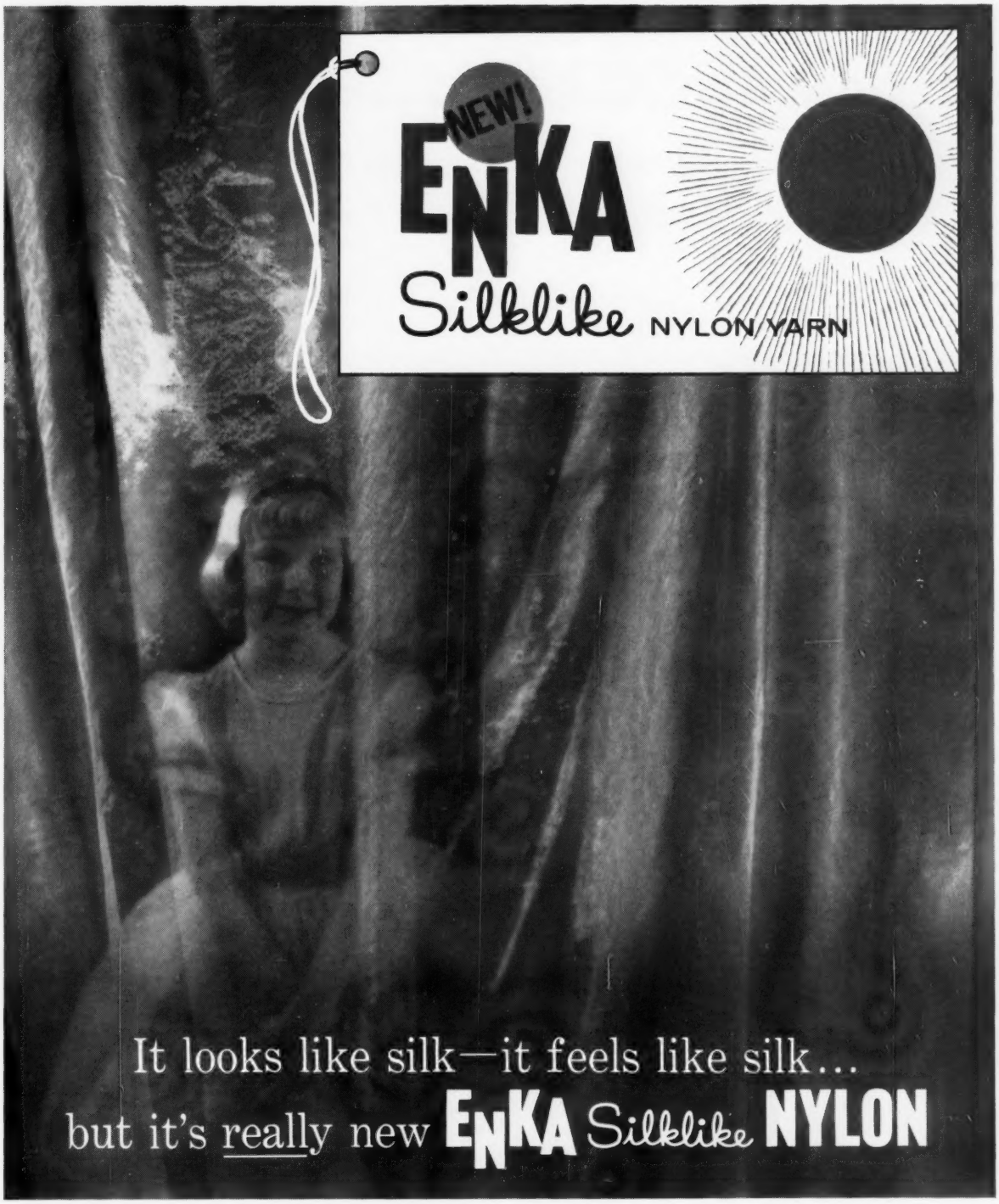
* Findings from a recent mill machinery facilities survey.

WHITIN machine works

WHITINSVILLE • MASSACHUSETTS

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

The best way to better yarns



YOU can stump textile experts with this one. For amazing ENKA Silklike nylon yarn creates completely new sheer fabrics that are sheer magic.

Imagine the rich look, the luxurious hand of true silk PLUS the extraordinary benefits of nylon—and you have an inkling of the special kind of fabrics Enka Silklike nylon can produce. Naturally, this new yarn has strength and superb washability. Better yet, it has plenty of bounce and resiliency. Best of all, it dyes beautifully in either brilliant colors or subtle shades.

Its fashion uses? Children's party dresses, Junior and Misses cocktail and evening wear, bridal gowns, negligees are just a few of the markets for Enka Silklike nylon sheers.

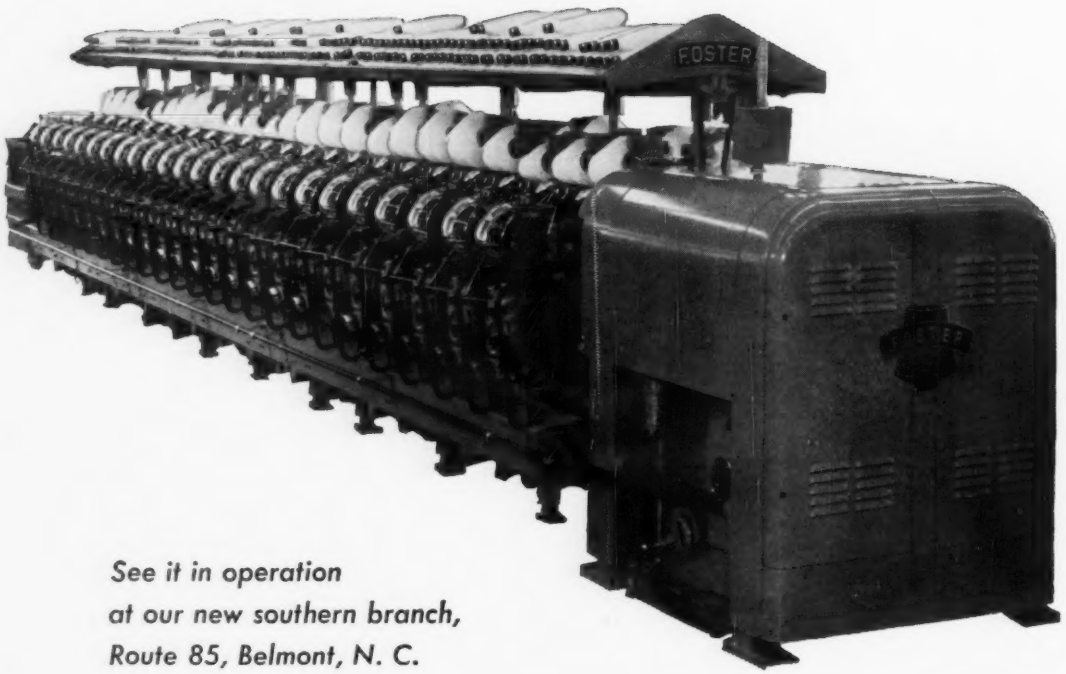
And to launch this fabulous new yarn—Enka has planned a thumping promotional campaign introducing consumers to new Enka Silklike nylon in fabrics and fashions. Check on it TODAY at: Enka merchandising in New York, 350 Fifth Ave., PE 6-2300 or the District Sales Office nearest you.

American ENKA Corporation, Enka, N. C. • Producer of nylon • rayon • yarns • fibers
NEW YORK OFFICE: 350 Fifth Ave., New York 1, N. Y. • DISTRICT SALES OFFICES: Greensboro • Providence

Now Available! FOSTER MODEL 506

Major Reduction in Operating Costs

Greatly Improved Yarn and Package Quality



See it in operation
at our new southern branch,
Route 85, Belmont, N. C.

SEEING IS BELIEVING

See the Foster Model 506 Automatic Cone Winder in operation at our new southern branch, Interstate Defense Highway 85, at Belmont, N. C. and/or arrange to observe machine operating under mill conditions.

NEW SOUTHERN BRANCH ON ROUTE 85, BELMONT, N. C.

FOSTER MACHINE COMPANY

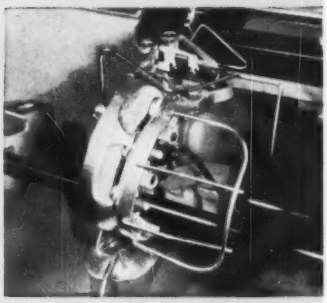
WESTFIELD, MASSACHUSETTS, U.S.A.

72-1

AUTOMATIC YARN WINDER

PRACTICAL AUTOMATION Automation of sales yarn winding equipment must be **practical.** By that we mean that the investment required by the mill must not be out of proportion to the return and that savings in winding costs must **not** be achieved **at the expense of yarn and package quality.**

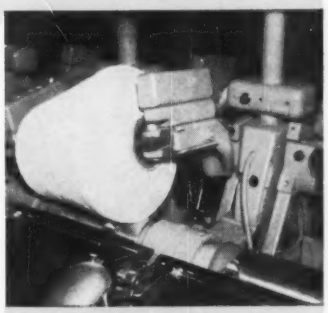
This philosophy has inevitably led to a step-by-step process in the automation of Foster sales yarn winding machines: — first automatic slubbing and cleaning, automatic disposal of empty bobbins and automatic cone size indicator on our manual winders; and now, in addition, an automatic supply bobbin exchanger on the Model 506, plus a greatly improved cone size indicator. Donning and doffing of cones are still done by hand on the Model 506, because automation of these operations would not justify the expense.



ELECTRONIC TENSION & IMPROVED SLUB CATCHER

WHY NOT AUTOMATIC KNOT TYING? We have **not** made knot tying automatic on the Model 506, because we have proved, to our own satisfaction, that it can be done **only at the expense of yarn and package quality.** Automatic knot tying permits loose yarn (butterflies), tangles, bobbin rings, crossed ends, uneven package density and rough yarn, and these defects can be discovered only when it is too late. What price savings in winding costs, if they result in a loss at the market place?

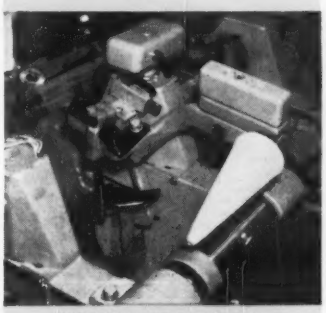
HOW WE SIMPLIFY HAND OPERATIONS Since certain operations in sales yarn winding must still be done by hand, it follows that they should be simplified for maximum efficiency. The donning and doffing of cones involve no problem. They have been as simple and easy as possible for a long time. The other hand operations, however, have presented an opportunity for improvement and we have reduced these operations to 3 simple movements: — 1. dropping the bobbin supply in a chute. 2. tying the knot with the left hand, by means of a high speed mechanical device. 3. instantaneous restart of the spindle with the right hand (see illustration). These 3 motions combined take only ten hundredths of a minute.



FOOLPROOF CONE SIZE INDICATOR

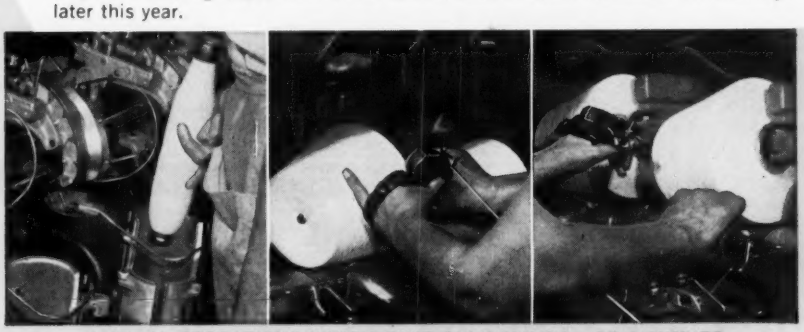
WHAT ABOUT QUALITY? The quality of Model 506 steep taper cones is even better than the quality of Model 102 cones (standard for the sales yarn market for many years). This quality results, not only from operator controlled knot tying, but also from an improved polydyne traverse cam, a larger diameter drive roll, compensating electronic tensions, new extremely efficient slub catchers, fool-proof cone size indicator and oil mist lubrication.

WHAT ABOUT SAVINGS? The purpose of automation, of course, is to save money. How much does the Model 506 save? The Model 506 runs at speeds from 900 to 1000 yards per minute — about twice as fast as manual winders — and increases an operator's productivity at least 50%. These figures are not theoretical. They have been substantiated and documented in mill tests, under production conditions.



REDESIGNED YOKE & ALUMINUM BALL BEARING CONE HOLDER

NOW AVAILABLE Early orders for the Model 506 are already scheduled for shipment starting Sept., 1961. There is still time to order machines for delivery later this year.

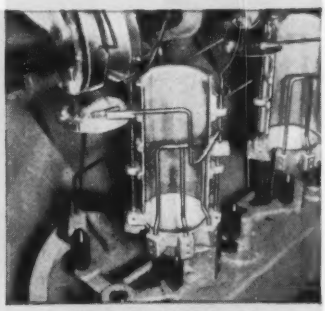


MANUAL OPERATIONS WHICH TAKE ONLY 10/100ths OF A MINUTE

DROPPING BOBBIN IN CHUTE

TYING KNOT WITH HIGH SPEED INSTRUMENT AND TESTING — ALL WITH LEFT HAND

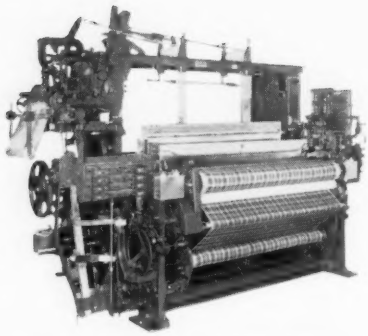
RESTARTING SPINDLE WITH RIGHT HAND



AUTOMATIC SUPPLY BOBBIN EXCHANGER

A Yarn Winder for Every Purpose

SOUTHERN BRANCH—Route 85, Belmont, N. C. • CANADIAN REPRESENTATIVE—Ross Whitehead & Co., Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ontario • EUROPEAN REPRESENTATIVE—Muschamp Textile Machinery (Sales) Limited, Eider Works, Wellington Road, Ashton-under-Lyne, Lancashire, England

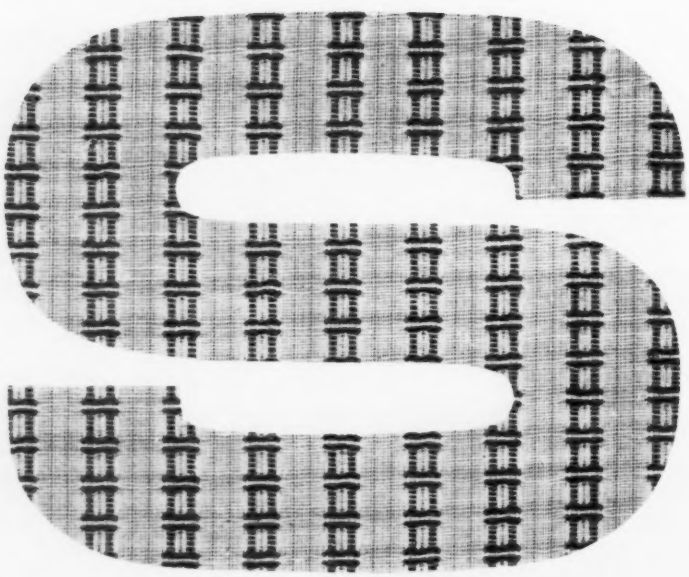


QSEWMT

QUALITY OF CLOTH · SPEED OF LOOM
EFFICIENCY · WEAVER ACCEPTANCE
MAINTENANCE COSTS · TRAINING TIME

SPEED of a loom is more than just picks per minute. Equally important is everything that increases performance and reduces down time due to mechanical failure. More production results from weaving at higher speeds without offsetting loom stoppages.

C & K has built higher speed weaving into the C-7 loom. Double link type binders stabilize shuttle flight, providing easier picking and more accurate checking. The transmitter drive gives a fly wheel effect for steadier operation at high speeds. Exclusive on Crompton & Knowles' new looms, electric protection permits speed without mechanical failure when loom bangs off. Many parts that used to wear, break, or lose adjustment are eliminated.



Push button control permits faster single picks, backups and pick outs. The C-7's electric brain assures faster weaving with increased protection for both loom and operator.

These are but the highlights of the many C-7 features which allow true high speed operation. May we show you some operating comparisons on how to weave more cloth in every hour?

CROMPTON & KNOWLES CORPORATION

WORCESTER, MASSACHUSETTS

C&K

WORLD LEADERSHIP IN AUTOMATIC BOX LOOMS–RESEARCH–ENGINEERING–MANUFACTURE

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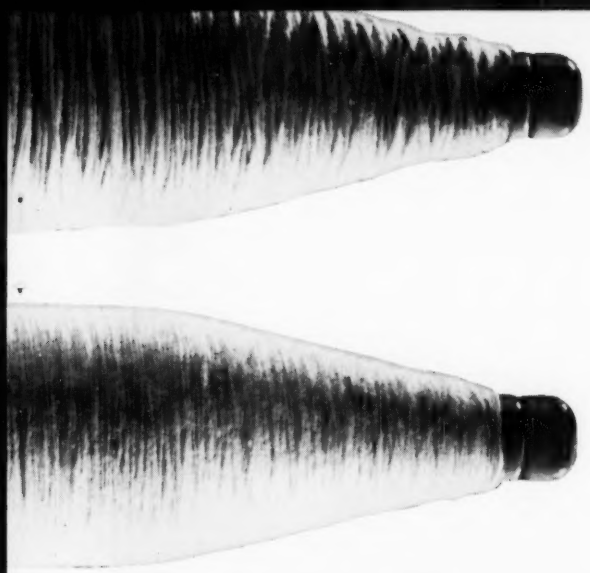
Strike up the band! Celanese home furnishings promotions get a big fanfare. It's happened year after year, ever since the introduction of a **unique promotional approach** to decorative fabric selling. The theme for '61 is **SCENE CHANGERS ... Ready-Mades in Fabrics with Celanese Contemporary Fibers.** Ideas are already brewing for programs for '62, so be on the lookout for their announcement. Be sure you're ready with new weaves and constructions made with Celanese Contemporary Fibers so you can get **your full share** of every future promotion. Remember, too, that Celanese is always interested in working with you on new fabric constructions. Celanese Fibers Company, 522 Fifth Ave., N.Y., 36 (a division of Celanese Corporation of America) Celanese®

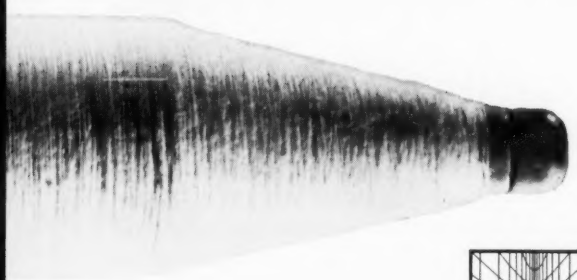
Celanese contemporary fibers

Now



UNIFIL®

features 8¾" quills for cotton weavers

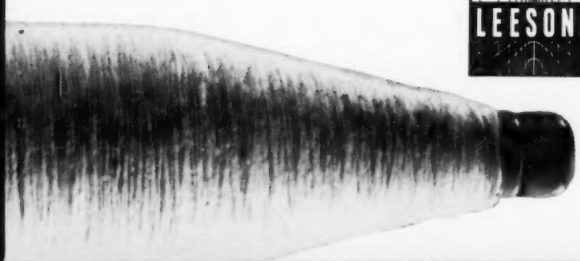


The 8¾" quill UNIFIL developed specifically for the cotton mill is another example of how Leesona's applied textile knowledge leads to textile machinery that improves manufacturing, reduces costs and results in higher quality fabrics.

Call your nearest Leesona Sales Engineer — in Boston, Philadelphia, Charlotte, Atlanta or Los Angeles. Or write LEESONA CORPORATION, P. O. Box 6088, Providence 4, Rhode Island.

LEESONA

Leesona Leads to Betfer Fabrics



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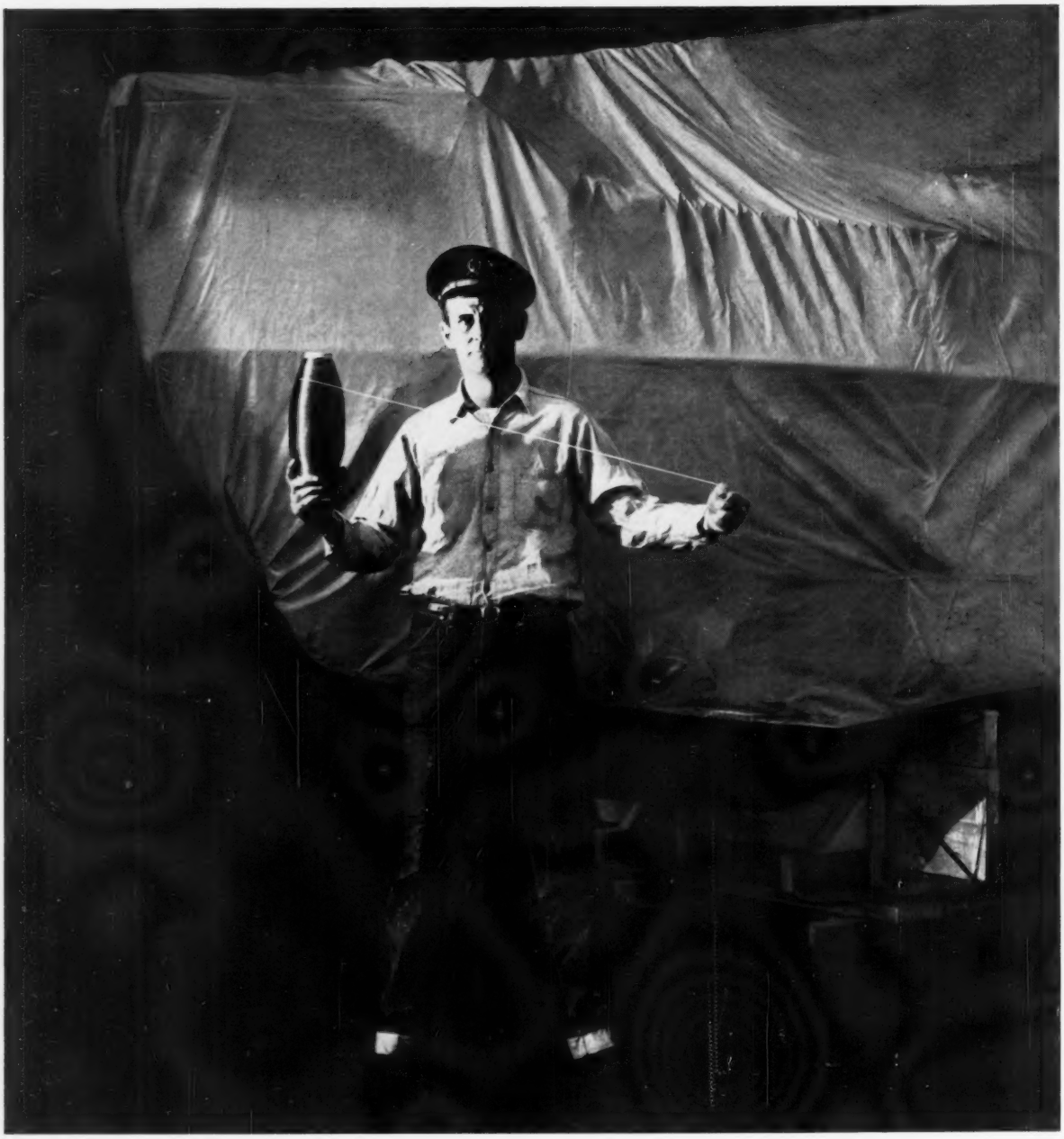


He's using a tougher yarn...why aren't you?

It takes a tough yarn to help a tarpaulin stand up to all kinds of weather. And tough is the word for high-tenacity Golden Caprolan® nylon by Allied Chemical. But Golden Caprolan is more than just tough. It is a remarkably versatile yarn that offers a unique combination of superior performance qualities. Unsurpassed resistance to abrasion, excellent rubber adhesion, greater resistance to flex-fatigue, to name a few. Golden Caprolan established a new standard of strength for marine rope and a new criterion for heat stability in nylon tire cord. Golden Caprolan is also performing superbly in conveyor belts, industrial webbings and dozens of other applications where heavy-duty performance is essential. If you have a tough job, we have the tough yarn for it. Our technical service staffs are ready today to help you.

Allied Chemical

Fiber Marketing Department, 261 Madison Avenue, New York 16, N. Y.

GOLDEN caprolan NYLON FOR THE 60's

MODERN TEXTILES
Magazine

Publisher's Viewpoint

The Winds of Change in Textiles

Most of us in textiles are accustomed by training and long years of habit to think conventionally about fabrics and the products made of them. To us, fabrics are either woven or knitted from yarns, then dyed and finished, cut and sewn into apparel or decorative products, or made use of in the variegated ways in which fabrics find application in industry.

Although we are thus influenced by habit to think of textiles primarily as woven or knitted cloths, most of us are aware, nonetheless, that in recent years immense and sweeping changes have taken place in the traditional conception of textiles and textile products. We are all familiar, of course, with the currents of change set in motion in textiles in modern times by the appearance of manmade fibers. First there was rayon and acetate, both derived from cellulose. Then in the years since 1945, we have seen the textile industry buffetted by great winds of change set in motion by the newer, the "pure" synthetics—first nylon and then a whole host of other new chemical fibers.

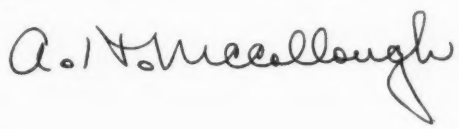
Under the impact of these new manmade materials our industry has changed greatly. It has seen the appearance of new machines, and new processing methods developed in response to the hitherto unavailable advantages and opportunities offered by the newer fibers. For one example, consider the tremendous expansion of women's seamless nylon hosiery. The strength, elasticity and high luster of fine denier nylon yarns has enabled the machinery makers to develop machines capable of knitting stockings of the greatest sheerness and becoming fit in seamless constructions.

Another impressive instance of the utilization in textiles of new non-textile materials invented by the chemists is the rapidly expanding use of urethane foam laminated to fabrics. This marriage of a new chemical material to conventional cloth offers the textile industry new and exciting possibilities of which we only have seen the beginning.

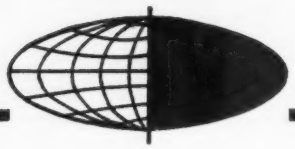
Fresh research is even today opening up new horizons of change which will be farther and farther removed from our conventional ways of thinking tied to woven and knitted fabrics. There are, to cite only a few of these new things, the growing use of plastics in apparel. Millions of serviceable raincoats, to cite one product, are in use today by Americans, and these coats are made of plastic sheeting put together without stitching by means of heat sealing of the seams. Vinyl plastic materials, made to look like and function like fine leather, are also being used increasingly in garments.

Then there is the fast-moving field of nonwoven fabrics, which in turn passes into the area of paper-like materials possessing many of the properties we once thought could only be obtained by weaving or knitting. Developments in these fields are not standing still. Work is going on in the laboratories of some of our biggest fiber producers and mills that may soon surprise us, whether we like it or not, with new materials that cost less or perform better or do both, to replace some of our markets for woven and knitted cloths.

These developments in plastics, in nonwovens, in modified paper fabrics are too important, too unsettling to customary ways in our industry, for any of us to ignore. Few in our industry will disagree, we believe, when we say that alert management, among the converters, mills, fiber producers, and indeed all other segments of our industry, must keep closely informed on developments in the areas of plastics, nonwovens, and paper. It may well be that many of us in a few years will be as deeply immersed in these materials as we are today in making cloth on looms and knitting machines.



TEXTILE NEWS



World Wide

EUROPE'S MANMADE FIBER consumption will reach 1.1 billion pounds in 1970—almost equalling the US, Dr. A. Caress, Imperial Chemical Industries Overseas Director, said. He told the UK Textile Institute's annual meeting that in 1959 Europe used only 300 million pounds of manmade fibers, half that of the US.

TWOFOLD COTTON THREAT was aired at recent Osaka conference of the International Federation of Cotton and Allied Textile Industries. The 18-nation group, which accounts for 66% of the world's plant capacity, saw Red China and Southeast Asia as a dual danger over the coming years. The Chinese danger remains enigmatical. But Hong Kong's export zeal was cited as the major Asian threat.

HONG KONG RESTRAINT is urged by Sir Robert Black, Governor of the Crown Colony. As though answering fears expressed at the IFCATI meeting, Sir Robert told the centenary dinner of the General Chamber of Commerce that "we have to recognize that our unrestricted textile exports create a problem for older industrialized countries . . . these must recognize our need for expanded markets," he added.

FRENCH DYEING PROGRESS cited by Comité France Actuelle, a business group. Their report claimed that France leads in developing a new range of dyestuffs for polyester fiber and is now concentrating on the dyeing of polyvinyl derivative fibers. French output in the highly competitive polyester dyeing field will jump more than threefold by the end of 1961.

NORTH IRELAND NYLON 6 plant is to be built by a new company, British Enkalon Ltd., backed by British Enka and its Dutch parent, AKU. Construction of the $14 million plant is due to start soon with output set for late 1962.

VENEZUELA COTTON YARN plant starts operating at Cumena, in Sucre Province, near one of the country's richest cotton growing sectors. The firm is Hilados Cumana. It is using 2,400 Italian-made spindles.

UNIQUE POLYESTER FIBER development is claimed by Kokoku Pulp Co. It is said to be cheaper than any other polyester. Kokoku may set up a joint production operation with Asahi Chemical for both fiber and cloth.

RUSSIA BUYING NYLON 66 plant from Vickers-Armstrong Engineering, Ltd. The $11.2 million contract would mean an output of 6,000 tons a year, beginning by 1964. Hans J. Zimmer, Vickers' West German associates, would supply some 7% of the equipment. Zimmer developed a process to convert AH salts into polyamide nylon 66 for industrial yarn and tire cord.

CIBA, INDIA, TO BUILD a big research center on a 65-acre plot at Goregaon, Bombay. Dr. Albert Wettstein, research director at Ciba's Basel headquarters, in Switzerland, said the institute would concentrate on basic research and not only on development work. Operations are to start in 1963.

ARGENTINA CUTS DUTIES on textile machinery. Dr. Roberto Alemann, Minister of Economy, told the press that the import tax reduction —from 150% to 40%—would bring lower prices on textiles both within Argentina and in the developing Latin American Free Trade Area.

UK MILLS SEEN HELPED by emphasizing larger units, as in North America. This suggestion was offered by Lord Barnby, British textile leader. After noting the advantages of "higher caliber technologists in design, chemistry, engineering and even in salesmanship" offered by larger units, he urged the Government to consider setting up a financial group to encourage new textile construction.

ALUMINUM CLOTH PLANT is expected to be built by Teikoku Rayon Co., Tokyo. The Japanese textile firm, known as Teijin, will join with the equipment producer, Riku-un Kizai, to produce a Tetoron polyester fabric with a 0.1-micron layer of aluminum. The cloth would be used for shielding sunlight for buildup, caps to repell sunlight, wallpaper, curtains and heat reflectors.

NEW CARE LABELING SCHEME is being launched by Courtaulds, Ltd. The system will cover all basic conditions under which fabrics and clothes may be cleaned and washed, regardless of fiber content. It will serve along with existing trademarks.

Belding Heminway branches out

Recent mergers have sharply increased sales volume and variety of products (textile and non-textile) of this century-old firm. Its vigorous management looks ahead with confidence, is receptive to further acquisitions and diversity of products

By Jerome Campbell,
EDITOR, MODERN TEXTILES MAGAZINE

In an era marked by mergers, acquisitions, consolidations, liquidations and corporate reshufflings of many kinds, textile people, inured beyond most business men to such changes, were nevertheless surprised and intrigued when M. Hausman & Sons in April, 1960 blended with Belding Heminway.

The merger, followed quickly by two additional acquisitions, moved Belding's sales volume up sharply from $26 million in 1959 to $40 million last year. The additional purchases were Lily Mills, a producer of retail sewing threads and art needle products in August, 1960, and Carl Joseph Co., weavers of glass fabrics in September, 1960.

The revitalized, enlarged and variegated firm that has emerged from these mergers, Belding Heminway Co., Inc. is now a major element in the United States' textile picture. And its management according to Harold A. Johnston, Chairman of the Board and Richard T. Kropf, newly chosen President (both men are Belding old-timers) is aggresive, open-minded and alert to any type of acquisition in the future that will build sales volume to or even over $100 million.

Virtually the same kind of thinking about Belding's future is expressed by Samuel Hausman, Chairman of M. Hausman & Sons, and spokesman for the Hausman family interests in Belding. By virtue of these interests which amount to approximately 40% of Belding stock, Sam Hausman is a man whose point of view understandably carries much weight with Belding management. "We do not intend to stand still," Hausman says. "We bought into Belding to make it a larger company, to make promising acquisitions, and to diversify the company's operations and product lines."

Jack Hausman, energetic President of M. Hausman & Sons and a Vice President of Belding, shares this view plus a broad range of business and philanthropic interests with Sam, his older brother.

Bouncy Leo Hausman, Sam and Jack's younger brother, also a Vice President of both Hausman and Belding says much the same thing. Belding Heminway, he believes, is going a long, long way. "We have great plans for its future," is the way he puts it, "great hopes of things to come. We are looking for good acquisitions—acquisitions that fit into our present operations." He makes the point, too, that future acquisitions will not necessarily be limited to textiles.

The merger of Belding Heminway and M. Hausman & Sons brought into one corporate structure two firms outranked by none in textiles in high reputation and distinguished records of successful operation. Although their respective fields of activity are vastly different, both Belding Heminway and M. Hausman, in terms of achievement, honor and high reputation, stand at the topmost level in the world of American textiles.

Richard T. Kropf

Samuel Hausman

Belding Heminway, whose antecedent companies go back more than 100 years to the earliest days of New England textile manufacturing, was set up in 1926 with a merger of Belding Brothers and Heminway Silk Co. and extended its growth in 1932 with the acquisition of the Corticelli Silk Co. Corticelli had been established in 1832 in Northhampton, Mass., by an ambitious and ingenious yankee, Samuel Witmarsh, who not only set up a mill to weave silk, but planted mulberry trees, bred silkworms and produced thus his own 100% American raw silk. The brand name "Corticelli" was given to silk thread the firm made in order to make it more acceptable to American women who were strongly partial to Italian thread. It has remained in use to this day, growing with the years, along with the Corticelli kitten, to be one of the oldest business trademarks in the United States.

Wooden Spools for Sewing Thread

In the latter half of the 19th century while Corticelli silk sewing threads were finding acceptance with women who did most of their dressmaking on a do-it-yourself basis, a business very similar in background was growing up in Watertown, Conn. This was the silk thread manufacturing firm established by another yankee hustler, Merritt Heminway, a buckle maker who turned to spinning silk thread. His great and lasting contribution to the thread industry was the invention of the wooden spool, used down to this day, as a more efficient replacement for the small "finger skein" which has been the tradition-hallowed way of putting up sewing thread for sale to tailors, dressmakers, and home sewers. In spite of the overwhelming success of his wooden spools, Heminway, curiously enough, also had to pander to the deep-rooted partiality of American women in those days of the bustle and crinoline for Italian silk thread. He labeled his early lines of American-made silk thread with the nobel Roman appellation of "Heminicci."

Meanwhile, as if for the express purpose of making our story even more complicated, out in the frontier areas of Michigan among the pioneer lumberjacks and prairie sodbusters, four farm boys also from New England, the brothers Belding moved ahead in the world from traveling peddlers into the manufacture of sewing threads. In time they lifted their firm, Belding Brothers, to equal rank with Corticelli and Heminway as the leading manufacturers of sewing threads. As the company prospered over the years they moved from threads into the manufacture of fabrics and became one of the largest weavers in the 20's.

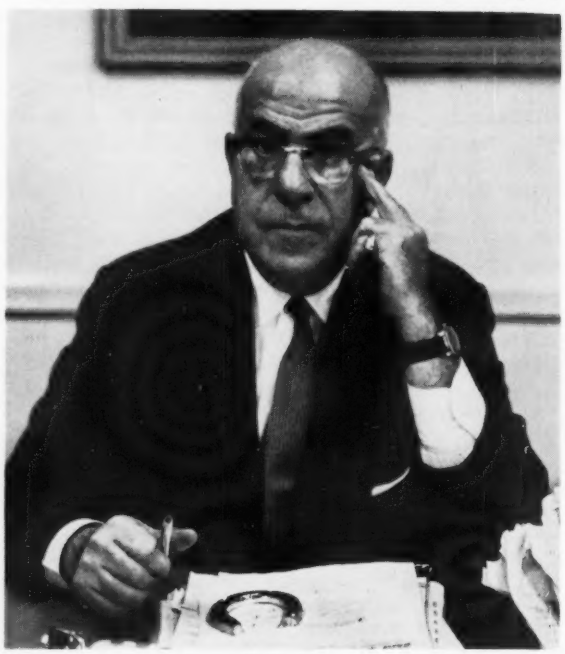
The consolidation that brought these three firms under one corporate name in 1932 thus linked together an impressive quantum of tradition and solid old-fashioned know-how in the manufacture of sewing threads and fabrics. During the depression, however, the Company closed all its fabric mills and concentrated on thread making.

Apparel Fabrics Re-Appear

In 1936, it again decided to re-enter the apparel fabric field and acquired the Klein Brothers' weaving plant in Bedford, Virginia. The full significance of this added production facility was not realized until after 1940 when Frank D. Levi joined Belding as Vice President in charge of the fabric division. Since then, under his guidance, this division has increased its volume 500% and today represents the largest single segment of Belding's corporate structure.

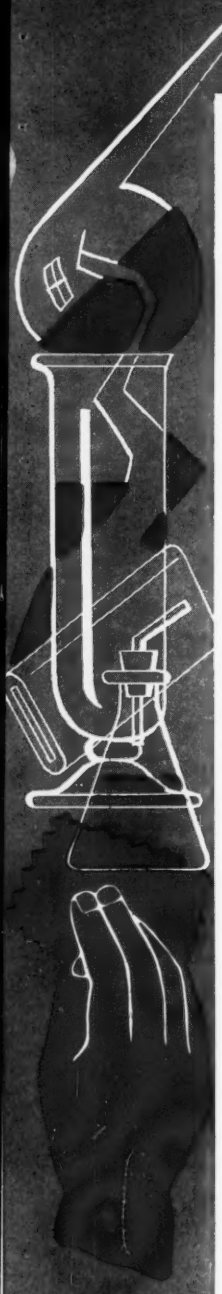
While not by any means as old as the Belding side of the merger, M. Hausman & Sons, as converting firms go, is one of the oldest and most solidly established in the vast and complex New York fabrics market. The firm was founded in 1913, by Morris Hausman, an immigrant from Austria who had arrived in New York City in the late 1890's equipped with a sharp mind, immense energy and an ambition to make his fortune. Morris Hausman started out in textiles as a jobber of cotton fabrics for the linings of ladies' handbags. As his business expanded, one by one his three sons, Sam, Jack and Leo joined him in its management. From jobbing, the Hausmans, in

(Continued on page 46)



Frank D. Levi

DYEING and FINISHING SECTION



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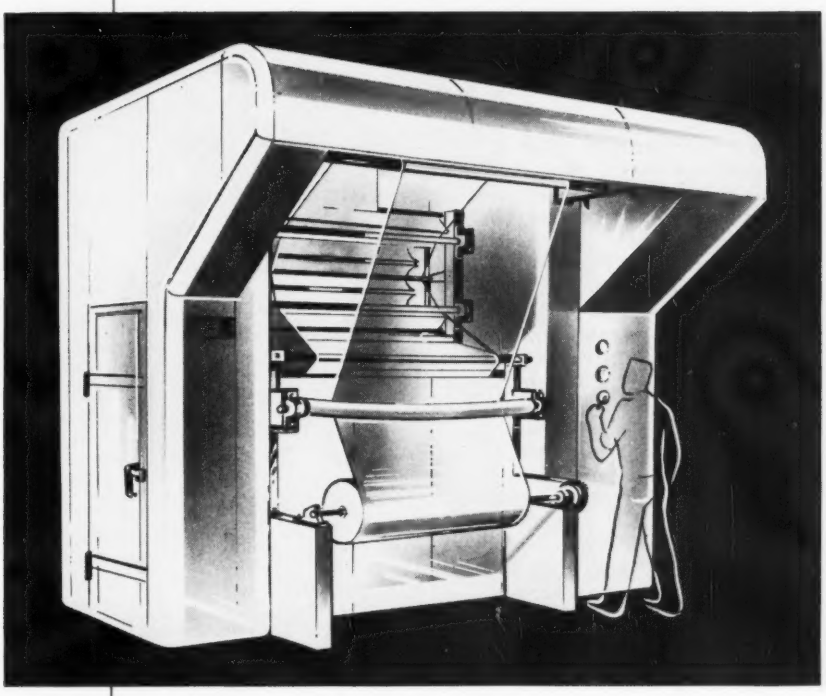

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FORTY-FIRST YEAR • INSTALLATIONS AROUND THE WORLD

AMACRON DYES

for polyester fabrics

New dye development places emphasis on fastness properties demanded by these fabrics

by **Herman P. Bauman,**
KOPPERS CO., INC.

AT THE PRESENT TIME, polyester fibers are being manufactured by several companies, and among the names under which they are being sold are Dacron, Fortrel, Vycron, Kodel, and in Canada, Terylene. Polyester fibers are finding increased market acceptance because of their high resistance to creasing, both in the wet and in the dry state, enabling them to retain their shape well, and to their excellent resistance to tearing, abrasion and wear. They also exhibit the well known properties of resistance to chemical and biological attack, high strength, and resistance to heat and light.

The dyeing of polyester fibers is being carried out with disperse dyes. These dyes are insoluble in water, but readily dispersible to produce a fine suspension, from which dispersion the fiber gradually dissolves the dyestuff. The complete exhaustion of the dye from the water system requires high energy, which may be supplied to the dyebath by carriers, by the application of high temperature in a pressure system, or by dry heat on the padded cloth.

The mechanism by which carriers accomplish the transfer of dye from the bath to the fiber is the subject of continuing research. Without a proper carrier it is not possible to carry out the dyeing of polyester in regular open dyeing equipment, such as jig, box, skein machine or padder.

It should be noted that even with a carrier, many disperse dyes can be applied to polyesters, but that many of these dyes do not possess the fastness properties which are demanded in fabrics which are knitted or woven from polyesters. It is for this reason that Koppers Co. has brought out their Amacron dyes specifically for this fiber. Emphasis has been placed on those fastness properties deemed most important for this fiber, namely, fastness to light, sublimation, washing, crocking and perspiration. The excellent mutual compatibility of these colors makes it possible to produce mode shades of tan, brown, green, grey or black by suitable mixing. Further, the excellent dispersibility of these Amacron dyes in water permits complete penetration of yarns in packages without shading or specking.

We list below the outstanding properties of Koppers Amacron dyes:

1. High tinctorial value.
2. Bright shades.
3. Level dyeing with complete exhaust.
4. Excellent dispersion.
5. Build up to deep shades without crocking.
6. Perspiration fast.
7. In blends with wool, exhibit low staining of wool fiber.
8. Ideal for home machine washing and commercial drycleaning.
9. Complete range of high mode shades.
10. Excellent fastness to sublimation.
11. In blends with cotton or viscose, Amacron dyes show practically no stains on the cellulosic fiber.

Carrier dyeing at atmospheric pressure with disperse colors is used for beck, jig and yarn dyeing machines. Most dyeing processes involve a single bath operation and general procedure for this application would be to scour the material in the normal manner, set dyebath at a temperature of 130°F. and add the dyeing assistants, including carrier. Circulate the dyebath for 10 minutes and add the disperse dyes and slowly raise temperature to 205°F. over 30 minutes. After running time of two hours dyeing is complete unless additions of dye are necessary. If dye must be added to obtain correct shade, steam should be cut off before addition. Removal of residual carrier and excess dye by soaping is important to obtain maximum fastness properties. Listed below are some normal beck formulas for popular fabrics.

BECK FORMULA—

Dark Navy

4% Amacron Blue 3RLS
6% Amacron Blue BLS
1% Amacron Orange SF
} based on polyester component

5 g/l Kayron Carrier
Bath ratio 20:1

Fabric—Dacron-wool, Dacron-rayon for men's wear.

Charcoal:

2.5% Amacron Blue 3RLS
3.3% Amacron Blue BLS
0.9% Amacron Orange SF
} based on polyester component

5 g/l Kayron Carrier
Bath ratio—20:1

Fabric—Dacron-wool, Dacron-rayon for men's wear.

Napthol Black:

2.25% Amacel Black 4S ex
1.80% Amanil Napthol AS-D Supra
} on total weight of fabric

5 g/l Kayron Carrier

Disperse dyes separately and add to dyebath containing the carrier. Boil 1½ hours—drop bath and diazotize hot (190°F.) in fresh bath with sodium nitrite and sulfuric acid for 30 minutes. Drop—scour with soda ash and hydrosulfite—wash and set bath to dye other fiber.

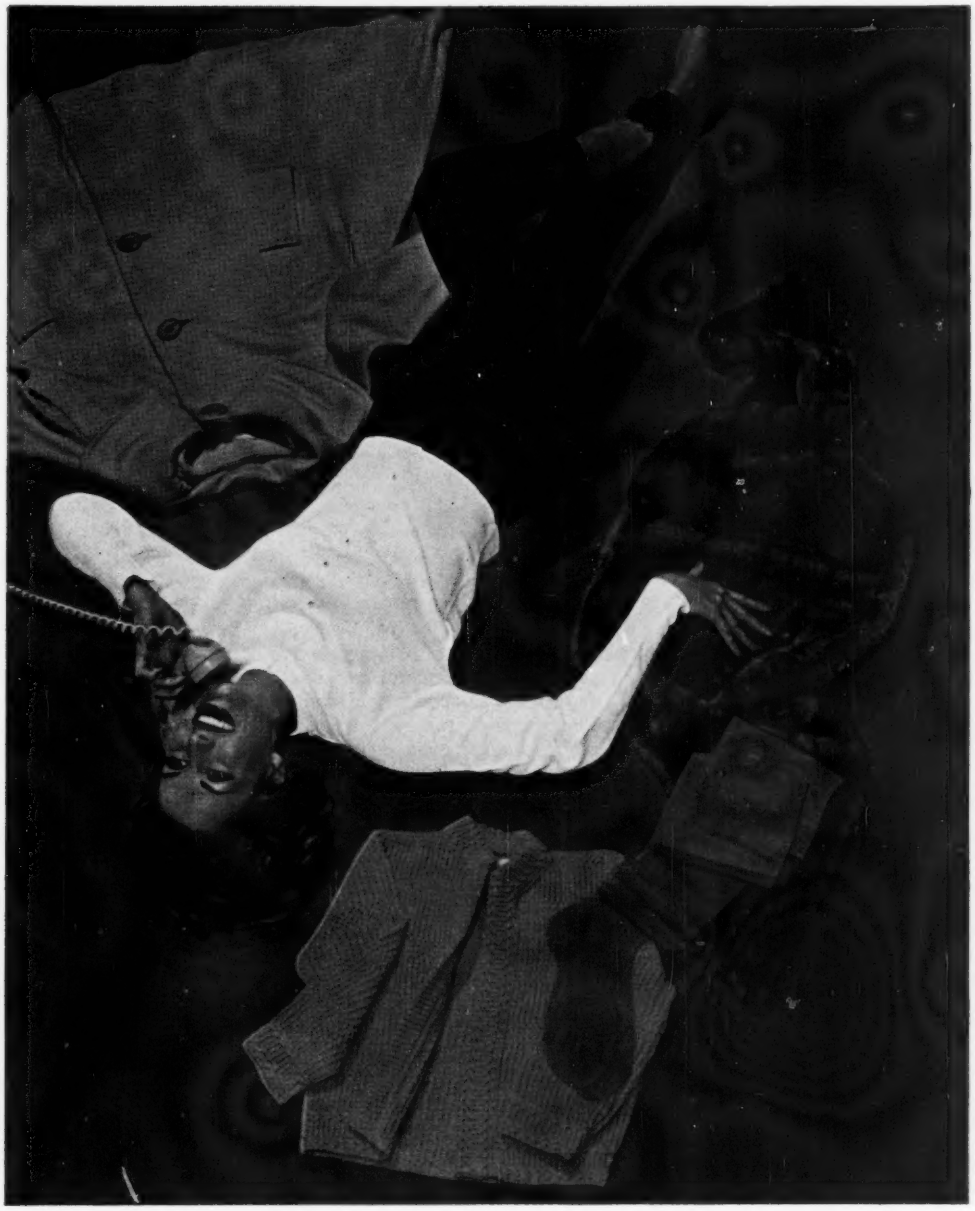
(Continued on Page 26)

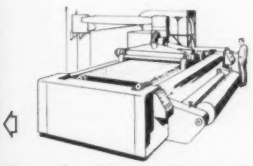
There's Turbo in everything she bought!

She loves beautiful things . . . sheer, delicate hosiery . . . the delightful warmth of high-bulk sweaters . . . the soft touch of fur-like fabrics . . . richly finished woolens . . . plush, carefree carpeting, draperies, upholstery . . .

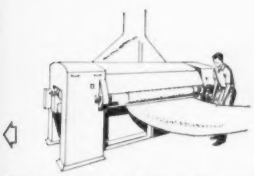
Turbo machines bring out the beauty in your fabrics — in fiber production, spinning, knitting, weaving, dyeing, and finishing. Almost all the leaders in the textile industry talk to Turbo first. Shouldn't you?

TURBO MACHINE COMPANY, LANSDALE, PA., U.S.A.
Telephone: ULysses 5-5131





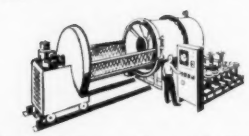
Excess handling is eliminated and shearing costs are reduced for carpet manufacturers through the Turbo Cross Shearer.



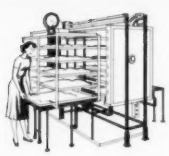
Turbo Electro-Finisher gives woolens, wool-blends, high pile and fur-like fabrics rich vibrant lustre and soft appealing hand.

For hosiery, the Turbo Dye Boarder combines preboarding, dyeing, post boarding, and drying in one processing operation.

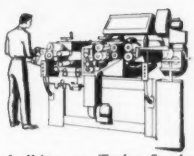
The Turbo Package Dyeing Machine is one of a complete line of engineered machines for dyeing, drying, extracting, and finishing.



Yarns and fibers are heat set in Turbo machines with capacities from 1000 lbs. (illustrated) to 60 lbs. per cycle.



Sweaters are "set for sales" on the tray-type Turbo Fiber Setter.



High bulking on Turbo Staplers, and Turbo Fiber Setters is the shortest route to synthetic fiber spinning.

TURBO

Amacron Dyes

(Continued from page 24)

Napthol Red:

2.5% Fast Red B Base
2.0% Amanil Napthol AS-D Supra } on weight of polyester
5 g/l Kayron Carrier

Disperse Amanil Napthol AS-D Supra in hot water and add to machine containing carrier. Disperse Fast Red B Base in hot water containing 0.5% Emulphor ON and add to bath. Boil for 1½ hours, drop bath and diazotize with nitrite and sulfuric at 190°F.

Red:

2.0% Amacron Red FB
1.3% Amacron Orange SF } on weight of polyester component
5 g/l Kayron Carrier

Fabric—Polyester-wool

Brown:

2.5% Amacron Orange SF
0.5% Amacron Blue BLS } on weight of polyester component
5 g/l Kayron Carrier

Plum:

4.0% Amacron Black LS
1.6% Amacron Red FB } on weight of fabric
5 g/l Kayron Carrier

Green:

2.0% Amacron Blue BLS
2.0% Amacron Yellow LS } on weight of polyester component
5 g/l Kayron Carrier

Dark Brown:

3.0% Amacron Orange SF
1.5% Amacron Blue BLS
0.5% Amacron Blue FBL } on weight of polyester component
5 g/l Kayron Carrier

Light Blue:

0.5% Amacron Blue BLS—on weight of fabric
3 g/l Kayron Carrier

Dyeings should be scoured well after dyeing to remove all traces of carrier.

High temperature and pressure dyeing is done with Amacron dyes on fabric, yarn and stock. Goods are loaded, scoured and bath set with .25% Levelene. Amacron dyes are added and temperature raised to 200°F. over 20 minutes. Machine is closed off for pressure and dyed at 30 lbs. (250°F.) for one hour. Machine is cooled down and bath dropped. Material is soaped or set for new bath to dye other fiber.

Gold:

1.5% Amacron Yellow LS
0.1% Amacron Orange SF } on weight of fabric

Tan:

0.1% Amacron Blue BLS
0.1% Amacron Yellow LS
0.4% Amacron Orange SF } on weight of fabric

Brown:

2.5% Amacron Orange SF
0.6% Amacron Blue BLS } on weight of fabric

Dull Green:

0.6% Amacron Blue BLS
1.5% Amacron Orange SF } on weight of fabric

The advantages of high temperature dyeing lie chiefly in lower cost due to elimination of carrier, better dye exhaust, shorter dyeing cycles and elimination of effect of residual carrier on light fastness. However, equipment costs are higher and much flexibility as to type of production equipment can handle is lost.

Amacron dyes suitable for high temperature dyeing:

Amacron Yellow LS	Amacron Violet B
Amacron Yellow 4R	Amacron Red Violet LS
Amacron Orange SF	Amacron Blue RLS
Amacron Orange RF	Amacron Blue BLS
Amacron Red FB	Amacron Blue FBL

It is essential that the material be soaped well after dyeing.

Heat-cure process (DuPont Thermosol Method) for the dyeing of textiles in which dry heat is used to develop dyes on the currently popular 65/35 blend of polyester-cotton by continuous procedure. The fabric to be dyed must be absolutely clean since the residual oils or dirt can be set by this treatment. The fabric must wet out instantaneously and uniformly to assure adequate absorption at the padder.

A procedure must be followed that will assure a complete dispersion of the dye in the pad bath to avoid specking. Pad at 100° to 120°F. Drying is a critical step. Disperse dyes, like vat pigments, have a tendency to migrate and every precaution should be taken to avoid this difficulty. Equipment used in drying varies considerably. Satisfactory results have been obtained on dry cans, roller ovens, frames and hot flue.

Fixation is carried out in a roller-type oven in which temperatures of 400°F. to 450°F. are obtainable. Time of exposure to dry heat will vary depending upon the equipment, depth of shade and weight of fabric being processed, although about 60 seconds is sufficient for complete fixation and penetration of dye into fiber. In this operation, balanced air-flow and consistent heat throughout the oven are also important requisites for uniform shade development.

Disperse dyes are the most important class of dyes applied to polyester by this process because of wide range of shades, good color value and exceptionally good fastness when properly applied. Optimum shade control and elimination of equipment contamination are obtained by selecting only those dyes that exhibit minimum vaporization.

We list here some of our dyes which are suitable for the heat-cure method:

Amacron Yellow LS	Amacron Red FB
Amacron Yellow 4R	Amacron Red FG
Amacron Orange SF	Amacron Blue RLS
Amacron Orange RF	Amacron Blue BLS

Brown:

1.5% Amacron Blue BLS
1.0% Amacron Orange LS
0.3% Amacron Red Violet LS

Light Blue

0.3% Amacron Blue BLS

Bluish Red

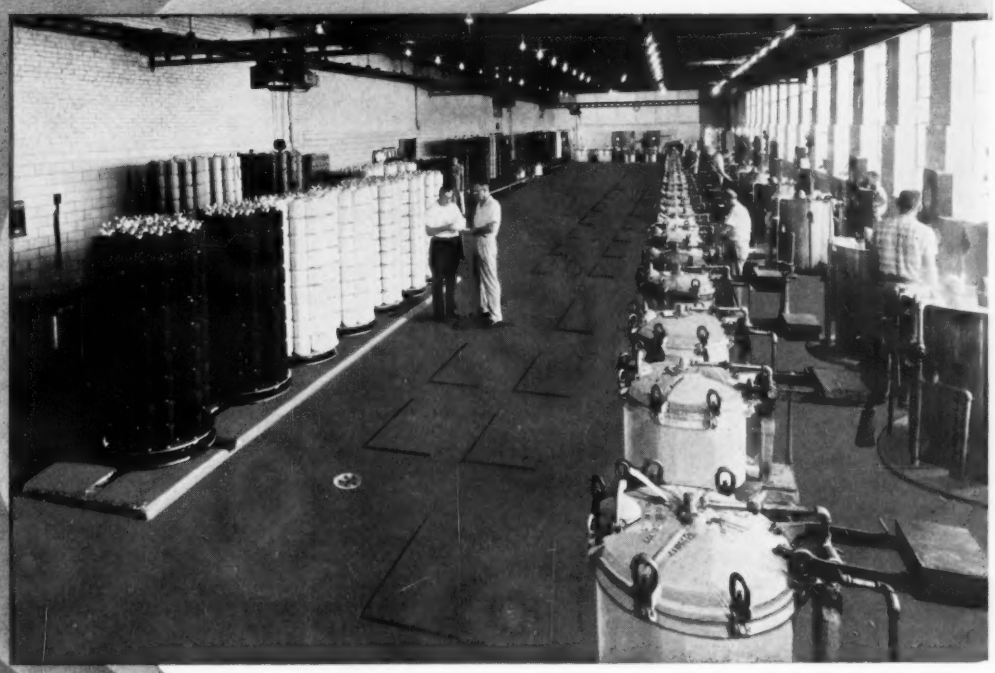
2.0% Amacron Red FG

Green

2.0% Amacron Yellow LS
0.75% Amacron Blue RLS

After dyeing is complete, the material is soaped well at the boil, and rinsed. ■

Valdese



A PRIME EXAMPLE OF GROWTH

From a modest beginning thirty-five years ago, Valdese has constantly expanded to its present capacity of 250,000 pounds weekly production of high quality dyed and bleached yarns for the knitting and weaving industries.

Valdese President, Earl Spencer, says—"Nothing but the best is good enough for our customers, and in order to obtain superior results we must have superior equipment. We started with Gaston County and we have never had any reason to change."

Latest additions to Valdese production facilities include a 1200 pound dyeing machine and three static pressure rapid dryers. They now have 28 dyeing kiers and sufficient drying to balance their production and render exceptionally fast service to customers.

40th ANNIVERSARY

Gaston County Dyeing Machine Co.

WORLD'S LARGEST PRODUCERS OF PRESSURE DYEING & DRYING MACHINERY

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The Rudel Machinery Co., Ltd., 614 St. James Street, W., Montreal, 260 Fleet St., E., Toronto

HYDRO-PRUF silicone finishes are versatile performers

THE USE OF SILICONES to impart to fabrics water repellency, spot resistance and improved abrasion resistance is by now well established in textile finishing. In the long years of research and testing that have led to the success of silicone finishes, Arkansas Co. of Newark, N. J. has been a pioneer whose efforts, centered in its Hydro-Pruf line of silicone finishes, has been notably successful in a quiet and conservative way. Arkansas' work has made a genuinely major contribution to the efficient utilization of the potential of silicones—work which today is recognized throughout the textile industry for its soundness and careful insistence on the most thorough research and testing.

It was in June, 1950 that Arkansas sold its first pound of Hydro-Pruf as a practical silicone for water repellency. The introduction of Hydro-Pruf at that time was a giant step forward in the use of silicone finishes in that Hydro-Pruf was the first silicone preparation that was free from the serious weakness of causing spots which do not show until the goods are dried. These shiny, oily spots sometimes caused by earlier silicones could only be remedied by the costly expedient of cutting them out of the finished fabric with a scissors.

Since the introduction of Hydro-Pruf 11 years ago, Arkansas has greatly improved its product by painstaking and unremitting research in its own laboratories. The company has also greatly broadened the range of Hydro-Pruf finishes until the line now includes four major silicone formulations. These include Hydro-Pruf A B and Hydro-Pruf F C for wool, and Hydro-Pruf S P L for imparting a soft finish. The most recent addition to the line, Hydro-Pruf C for cotton, is especially notable for its unique water-repellent finish so durable that it will withstand many washings at the boil in the presence of alkaline extenders used by commercial laundries.

What, specifically, is Hydro-Pruf? In its basic technical bulletin on this silicone finish, Arkansas describes Hydro-Pruf as an aqueous milky emulsion containing a complex combination of silicone resin and resin-forming chemicals. It pours readily and is miscible with cold water in all proportions. The stability of the bath is excellent and will not break down during the operation or build up on the rolls or spot the fabric.

When properly stored, Hydro-Pruf does not polymerize on standing. Although Arkansas does not recommend that it be stored for extended periods, the firm's technicians have checked the material that had been stored for 12 months and found no apparent physical change or loss in efficiency.

Like any other textile resin, Hydro-Pruf requires the use of a catalyst for proper and complete curing of the fabric. For this purpose, Arkansas research developed a line of highly efficient catalysts sold under the trade name "Cobelfix". All Cobelfix compounds are essentially emulsions of metallic catalyst having a highly complex organic nature. They are slightly acid, having a pH of 6.0 to 6.5 and are not only compatible with Hydro-Pruf but with urea-formaldehyde and melamine formaldehyde resins as well. Cobelfix catalysts are also compatible with the new cyclic urea-formaldehyde resins and other modified types of resins used in textile finishing.

Although basically intended for water repellency, it is one of the most important characteristics of Hydro-Pruf silicone finishes that they are extremely versatile performers. They impart to fabrics many other desirable properties in addition to water repellency. They are also versatile in that they can be applied to a very broad range of fabrics.

What are some of the desirable properties in addition to water repellency that Hydro-Pruf gives fabrics? This silicone finish, 11 years of successful use on millions of yards of fabric has shown, improves crease resistance when used with resins. And, of equal importance, when used with or without resins, it improves abrasion resistance. Hydro-Pruf is an excellent softener when used without resins. It is also a finish that improves the sewability of resin finished fabrics.

Other advantages of Hydro-Pruf are its ability to impart to fabrics a high degree of spot resistance, and

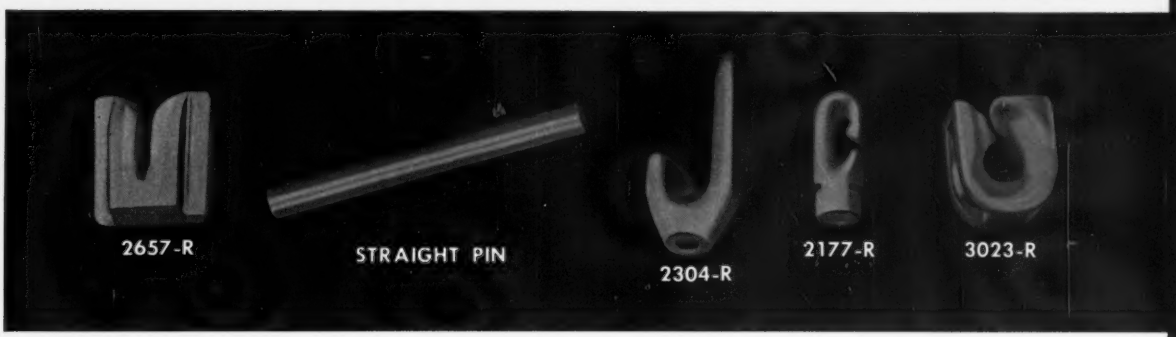
DURABILITY TESTS OF COMBED COTTON FABRIC FINISHED BY A COMMISSION DYEING AND FINISHING PLANT WITH THE FOLLOWING FORMULA:

8.0% Hydro-Pruf C
0.8% Catalyst A
0.2% Catalyst G
Applied on a padder
Dried in the usual manner followed by curing for 2 minutes at 360°F

RESULTS OF TESTS		*SPRAY RATINGS*
Original		100
After 212° Washes With Soap and Soda Ash	#1	80
	#2	80
	#3	70
After 160°F Washes With Neutral Soap	#1	80
	#2	80
	#3	80
After 120°-130°F Home Washes With Neutral Soap	#5	90
	#10	80
	#15	80

(Continued on Page 61)

MACHINERY and EQUIPMENT SECTION



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Not Just a Wear-Resistant Surface, but the Same Hard, Dense Material All the Way Through!

Mitchell-Bissell "Rutex" Thread Guides are made from a special homogeneous Titania compound that provides a perpetually hard, smooth wearing surface no matter how deeply the thread may wear into the guide. There is no outer surface to wear through and put an early end to the guide's usefulness. Introduced by Mitchell-Bissell at the recent Southern Textile Exposition, these quality guides were enthusiastically received.

Mitchell-Bissell "Rutex" Thread Guides provide a three-way saving . . . lower first cost, longer service, less downtime. That extremely hard, smooth contact surface never changes because it is characteristic of **all** the material from which the entire guide is made. **Wear-resistance never ends!** You can use these new guides with complete confidence in their quality, efficiency and economy.

"Rutex" Titania Guides are available in many of our standard Porcelain thread guide patterns. For prices, please give Porcelain pattern number, or send sketch or sample of guide you are now using.

EST. 1882

MITCHELL-BISSELL CO.

TRENTON, NEW JERSEY

Southern Representative: HOLT ASSOCIATES, INC., *Greensboro, N. C.*

The Only Manufacturer Offering a Complete Line of All Types of Ceramic and Wire Guides for the Textile Industry.

More highlights of the knitting show

Yarn processing equipment, improved manmade fibers shown at Atlantic City

(Continued from last month)

Barber-Colman Co., for the first time at a knitting show, had an automatic spooler in operation. The machine, a Type FF spooler, drew excellent response. A circular knitting machine was also in operation to show how the wound cones performed. A new feature of the FF spooler is an electric eye which automatically sorts empty bobbins from those still containing portions of yarn. Sales yarn winding was stressed, the company pointing out that often the cheeses are used for re-winding onto commercial cones, because great length means less ends down. The Barber-Colman process, it is claimed, insures superior condition of the yarn. Paper cones of 6" traverse and 6° taper were being produced directly on the spooler at the show. Cones from the FF spooler are suitable for direct use in many knitting operations.

Fletcher Industries capitalized on the big interest in all aspects of stretch yarn for both knitted and woven goods by operating its filling-wind redraw machine. It winds a pirn with complete tension uniformity. It is not restricted to the textured yarn field. A new traverse motion drew favorable comment in that it lays the yarn on the pirn in such a way that delivery is always from the top. Fletcher also had a novelty yarn twister running with spindle speeds of from 5,000 to 9,000 RPM. It can also function as a standard twister when necessary.

SELLING POINTS—A Fletcher Industries' representative tells prospects about his firm's new winding equipment

Sonoco Products Co. had a broad range of cones, cores, bobbins, tubes, spools and other paper specialties on display. Many of these products were of prime interest to knitters, yarn producers and sales yarn spinners.

Milton Machine Works featured its 30-in diameter aluminum alloy tricot and raschel beams which it had introduced at the previous show. The bigger beam will hold twice as much yarn as a 21-inch diameter beam and it is possible to load it with up to 91,000 yds. of 30 denier nylon, for example. The beam will withstand pressures in excess of the load imposed in normal operating conditions. Another highlight of the Milton exhibit was a line of aluminum alloy selvage spools.

Heany Industrial Ceramic Corp. displayed a wide range of Heanium thread guides and tension devices, many of them designed for the yarn producing, throwing, winding and knitting fields. The Carroll redraw tension was much in evidence. Its main purpose is in redrawing such yarns as nylon directly from the pirn at normal speeds as well as speeds up to 550 yds. per minute. It will hold tensions very closely in a range of ½ gram up to about 20 grams for special purposes.

Herr Manufacturing Co. featured its complete line of "M" Herr conical rings and holders which have "seam lubrication" for manual and automatic lubrication. Another feature of Herr's exhibit was its flyers which can accommodate all types of yarns for uptwisting. The flyers are good for stretch nylon yarns. The conical rings, it was indicated, give cleaner yarn, faster operation and reduced yarn breakage on spinning frames and twisters.

Cocker Machine & Foundry Co. exhibited its Cocker SB Tricot Warper, a new machine specifically designed to meet the needs of the average tricot knitting mill. Cocker spokesmen also stressed that the new warper is a useful machine with many advantages for large yarn producers who warp tricot yarns for shipment on beams to their customers. Overall aim of Cocker engineers in designing the new SB Warper, it was pointed out, was the creation of a machine with all the features needed to produce high quality tricot warps to insure trouble-free, high speed knitting.

Manmade Fiber Trends

Outstanding at this year's Knitting Arts Exhibition was the variety and color afforded to the floor of Convention Hall by the many exhibits of manmade fiber producers. Prominent in these exhibits were dis-

(Continued on page 35)

you add
quality to
laminated knits
with **TURBO-ORLON***

Outstanding bondability . . .
hand . . . drape . . . crease resistance
. . . lightweight garments with
excellent thermal insulation

Orlon processed by the Turbo-Stapler provides the properties you want for laminated knits. Its uniform fiber distribution and improved spinnability makes a 80/20 ORLON/WOOL blend with excellent cover and fabric breathability.

Turbo-Orlon is supplied in high bulk form especially for laminated fabrics. *Let your licensed Turbo spinner show you how Turbo-Orlon can add quality to your laminates.*

*Du Pont Reg. Trademark

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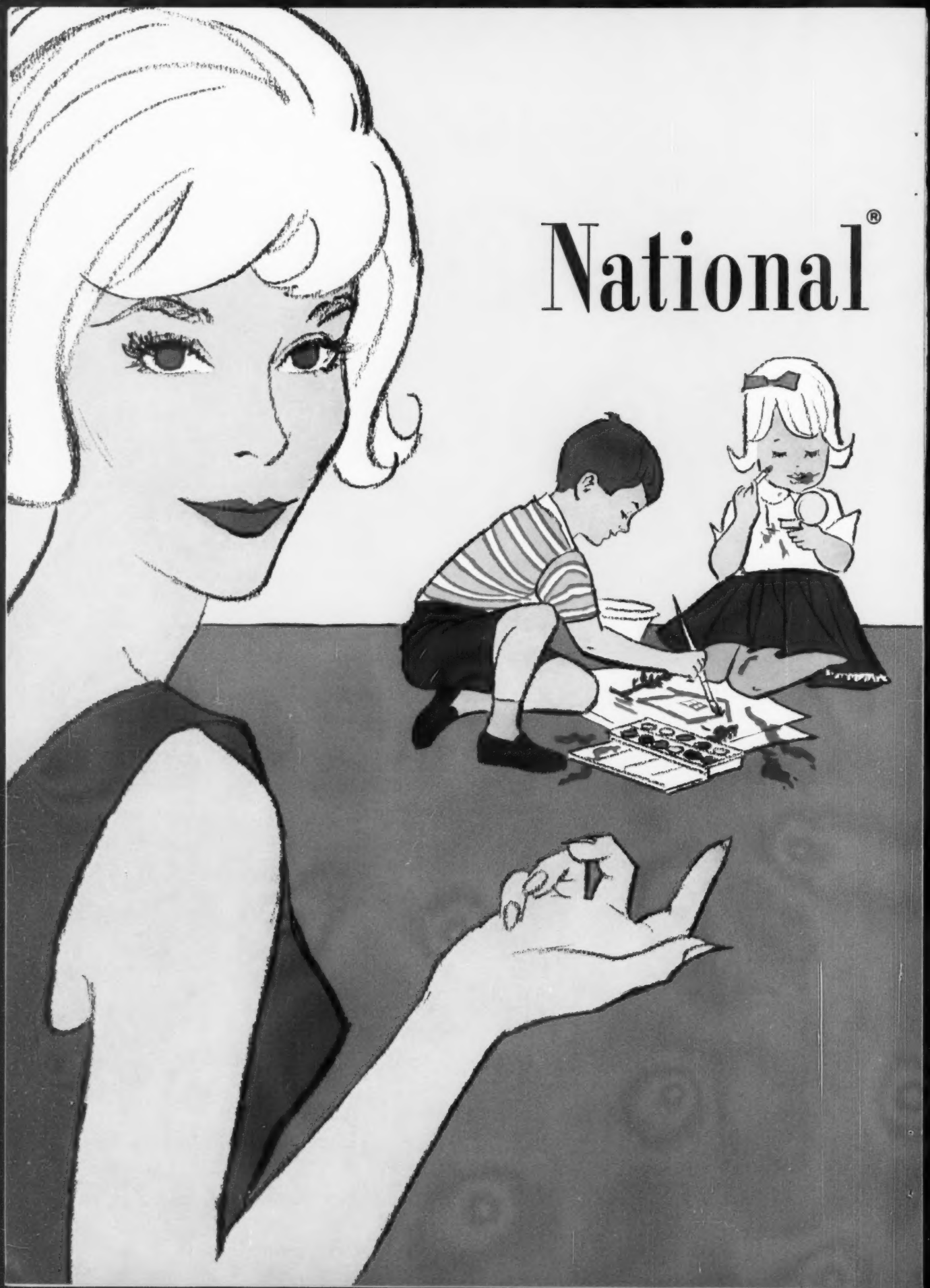
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Sulfur Dye Solutions

Save the day!

THESE MACHINE-WASHABLE DYES ARE SIMPLE AND ECONOMICAL TO USE

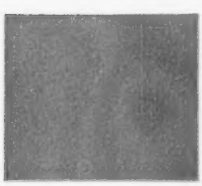
They give you all the well-known wet-fastness and economy advantages of sulfur dyes in a new, convenient form—*cleaner, faster, easier to handle!*

National Sulfur Dye Solutions save you time and labor by eliminating the need for pre-reducing and boiling up.

Applied in virtually any type of dyeing equipment, at any stage from raw stock to piece goods, they produce an extensive range of attractive shades. They are recommended for all types of cottons and rayons, particularly for carpeting, ticking, cambric, denim and twill. Selected dyes . . . including those illustrated . . . are suitable for resin finishing.

Colors in the illustration, left, are self-shades and combinations of the dyes shown below. They were chosen from the complete range of National Sulfur Dye Solutions because of current interest in these shades.

Write for samples and data today!



National Sulfur Brown RS Solution

National Sulfur Olive GS Solution

National Sulfur Yellow RCFS Solution

National Sulfur Black BGS Solution

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These laboratories and research facilities exist to serve you. To assure you *uniform* pulps *every time*. Such great pulps as: Acetacell, Novocell, Tenacell, and Tyrecell.

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Knitting Show Report

(Continued from page 30)

plays of new knitted constructions to show knitters paths to new profits through advantageous production of new fabrics utilizing the advantages of man-made fibers. Also on display were knitted garments, in some instances, as in the fashion show by Celanese, demonstrated by live models.

Allied Chemical Corp. showed progress in its Caprolan nylon by displaying a range of knit products including carpeting, outerwear, bulky knits and lingerie. Outstanding interest was shown in Allied's new lustrous, modified cross-section, trefoil knitting yarn. Also featured were space-printed yarns and nub-printed yarns.

American Cyanamid Co. featured the dyeing properties of Creslan by showing a microdyeoscope film which illustrated the buildup of dyestuffs on Creslan and other fibers. Some of the knit outerwear garments shown by Cyanamid contained new yarns developed through the company's designer-service program.

American Enka Corp., among other things, stressed the importance of the foam laminates using nylon warp-knit doeskin and suede effects. Its 15-denier and 20-denier hosiery yarn was shown in a number of products including stretch hosiery, combination panti-stockings and support hosiery.

American Viscose Corp. used the exhibition to show its new Avron high-strength rayon, Avril rayon and Avlin multi-cellular rayon. The company demonstrated its Avisco Integrity Tag Program can be of value to knitters. Also featured were acetate yarns, industrial uses for rayon as well as the many applications for cellophane film by knitting mills.

Celanese Corp. of America took advantage of the popularity of the double-knits by showing its Arnel 60 in this type of construction. Also shown were tricot fabrics using Arnel and acetate filament yarns in combination with other fibers in brushed and sueded fabrics. With interest running high in foam laminates, these particular fabrics created much talk. Other fabrics were 3-bar tricot with Arnel as a basic yarn for crepe- type fabrics. There were also Arnel and cotton circular goods, Arnel and Corval, Arnel and acetate in blends and combinations. The fashion show at the Celanese booth drew large crowds.

GETTING THE MESSAGE—Visitors at Allied Chemical's exhibit hear about advantages of Allied's Caprolan nylon in knitted fabrics

VEREL'S VIRTUES are explained to Ben Thal (right) of Alamac Knitting Mills by a representative of Eastman Chemical Products. Verel is Eastman's acrylic fiber

Chemstrand Corp.'s display highlighted new possibilities with Acrilan, giving details of single-bath dyeing for both Acrilan and Acrilan 16. There were double knit jersey fabrics of 100% Acrilan as well as brushed knits. Foam laminates were also shown with both Acrilan and nylon fabrics. Chemstrand's textured nylon yarns came in for a lot of attention as well as its Cadon nylon multilobal yarns.

Courtaulds (Alabama) Inc. featured its Corval cross-linked rayon in a variety of knit goods fashions, showing knitters how they can incorporate this new yarn in many profit-earning ways. New end-uses were stressed for Corval as well as for the company's Coloray solution-dyed rayon.

Du Pont divided its exhibit into four areas of hosiery, sweaters, flat knit and circular. Three texturing processes were shown in hosiery including Banlon, Tycora and Agilon. A new product was Lycra yarn in surgical hose. Sweaters shown were all made of Orlon in several different types including the recent Orlon-Sayelle. In the flat knits, Du Pont featured nylon, Dacron, acetate and Lycra. Tricot fabrics using Antron nylon were also shown. Predominant fibers shown in circular knits included nylon, Antron nylon and Orlon. Getting attention were new raincoats in foam laminates of wool and Orlon. Double knit jersey was also shown.

Eastman Chemical Products, Inc., in its exhibit placed emphasis on knitted fabrics and apparel made with yarns containing its fibers. Pile fabrics made with Verel, Eastman's modacrylic fiber, were prominent in the display as were knitted swimsuits and other garments made with Chromspun, Eastman's solution-dyed acetate yarn, this year celebrating its tenth anniversary. Acetate tricot lingerie fabrics were also shown.

(Continued at bottom page 37)

COMING IN MTM'S BIG SEPTEMBER ISSUE

TWO important special features in Modern Textiles' September Issue offers **double value** to advertisers. Here's what MTM will offer its readers throughout textiles (your advertisement is bound to benefit)

1 A new, completely original section that will report on GROWTH OPPORTUNITIES IN TEXTILES. This special report, virtually a pocket encyclopedia of today's textile marketing opportunities, will give MTM's readers in mill management and converting authoritative reports updating them on the exciting new developments in

FABRIC-FOAM LAMINATES

OPPORTUNITIES IN CIRCULAR KNITTING (including double knits)

STRETCH FABRICS, BOTH WOVEN AND KNITTED

NEW BULKED, TEXTURED AND MULTI-LOBAR YARNS ALONG WITH FABRICS THAT CAN BE MADE FROM THEM

NEW HIGH SPEED DYEING & FINISHING MACHINES

plus reports on other important new developments in yarns, fabrics, machines and finishes that offer promise of higher profits.

2 As a second major feature we will include in our big September Issue a new edition, freshly updated and improved of our famous TABLES OF DENIER NUMBERS & FILAMENT COUNTS OF U.S. MANMADE FIBERS & YARNS. This annual compilation is used widely by millmen in designing fabrics, specifying yarns and fibers, and figuring costs.

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Widening profit possibilities for fabric-foam laminates

INTEREST IN THE PROFIT possibilities of fabric-foam laminates for an increasing range of men's and women's apparel is moving to new levels of intensity throughout the textile industry. At the Knitting Arts Exhibition in Atlantic City in April, displays of knitted fabrics laminated to foam backing attracted much interest among visitors. Urethane foam bonded to knit fabrics to form integral fabric-foam laminates provide warmth without weight along with crease-resistance, and good hand and drape.

Knit cloths to which foam is being successfully laminated include cotton, wool, nylon and acrylic constructions knitted on both circular and tricot machines. Use of foam laminates has opened up new areas in apparel for knitted cloths. Before the appearance of foam laminates, observers at the show noted, most knitted fabrics were restricted in the range of their uses because of the inherent tendency of knits to stretch and sag. Foam, it was pointed out, provides the necessary stabilization along with a high degree of warmth without excessive weight. Uses for fabric-foam laminates, or "Foam-Backs" as they are called in England, include men's coats, raincoats and zipper jackets; women's raincoats, suits and car coats and children's snow suits and other outdoor play clothing.

Currently, the garment manufacturing industry is busy making many new types of cold weather leisure garments for all ages and both sexes utilizing knitted fabrics laminated to urethane foam. This fall the retail stores will be full of these new garments and retailers are anticipating booming sales of this new kind of moderately priced apparel.

According to Benjamin Collins, general manager of the Plastics Division, Nopco Chemical Co., one of the leading producers of urethane foam for laminates, foam supplies the vital ingredient—stabilization—for good shape, drape and softer hand in apparel end uses. Collins also points out that foam-fabric laminates now in use can be dry cleaned. Also the foam permits normal "breathing" of the fabric thus allowing circulation of air through the garment, important to the comfort of the wearer. Foam-fabric laminated cloths also possess high strength, resistance to tearing, ability to dry quickly and not retain odor, along with resistance to bacteria, mildew and fungus. Fabric-foam laminates also do not "age" and thus retain their properties of warmth, flexibility and strength for the life of the garment.

Knitted fabric-foam laminates are produced by bonding the knitted cloth to foam sheeting which is delivered to laminators by Nopco and other foam producers in thicknesses ranging from 1/6 through 1/8 of an inch. The sheet of foam is laminated to the fabric by either controlled heating of the foam to fuse it to the fabric or by means of an adhesive. Currently, it appears that the flame-laminating is the preferred method.

Within recent months, Nopco, according to Collins, has introduced a new formulation of polyester foam tradenamed Nopcofoam Insulining. He stated that the new foam is helpful as a laminate for knit goods because of its closer knit appearance, better drape, softer hand and its improved ability to give warmth without adding weight. He also noted that Nopco produces foam sheeting for laminating in lengths up to 450 yards, in widths from 36 through 77 inches in any required thickness and any desired color. He said that Nopco is expanding its facilities for producing foam. During 1961, the firm will complete foaming and fabricating plants at Chattanooga, Tenn., and in the midwest. Construction will also be completed late this year on a new plant at Linden, N. J., to produce toluene diisocyanate, a basic ingredient of foam.

More information on foam-backed fabrics coupled with an estimate of the growth of this field that may be expected in the years ahead was offered recently by Herman B. Goldstein, Sun Chemical Corp. Speaking at the annual meeting of the National Knitted Outerwear Association, Goldstein reported on a recent survey made by his company. According to the survey, about five million yards of polyurethane foam were used by the clothing industry in 1961; 12.5 million yards will be consumed this year, and a projection of expected demand makes it likely that consumption in clothing will attain 35 million yards by 1965. Goldstein pointed out that when a thin layer of foamed, flexible polyurethane is laminated to woven or knitted cloth, the resulting composite structure achieves functional and esthetic properties not obtainable with either the foam or the fabric alone.

Knitting Show

(Continued from previous page)

Rhodia Inc. showed knitters the latest progress made in using Rhovyl fibers and yarns in knitwear. A large variety of end uses were listed and garments shown. Popular yarn blends have been made with Rhovyl and rayon, nylon and cotton, in varying combinations.

Fabric-Foam Laminates

One of the faster growing potentials for certain types of knitted fabrics is their lamination to foam. This market development was highlighted at the show both by exhibitors who are directly connected with the foam laminating process and by yarn suppliers and others who featured knit fabrics laminated to foam in order to emphasize new end uses for their own products.

General Foam Corp. showed different types of samples of foam as well as foams laminated to knitted fabrics for men's, women's and children's outerwear and sportswear. Samples of foam-lined garments were also shown.

A. D. Gosman Inc. showed fabric-foam laminates as well as samples of different types of foam in varying thicknesses. Knit fabrics laminated to urethane foam included samples ranging all the way from bulky knits to fine tricot goods. ■

1960 Woven Cotton Textiles Down

PRODUCTION of woven textiles of cotton, manmade fiber, wool and silk in the United States in 1960 totalled 12,022,970,000 linear yards, down 3.2 per cent or 391,508,000 from the revised 1959 output of 12,414,478,000, according to "Ten Years of Broad Woven Fabrics" issued recently by The Association of Cotton Textile Merchants of New York. The figure was 557,842,000 linear yards or 4.4 per cent less than the 1950-59 ten year average production of 12,580,-812,000.

Woven textile production was at an unusually low point for the year due primarily to curtailments in the last half, and with the exception of 1958 was the lowest of the decade. Otherwise, in the 20 year history of this particular statistical series, only 1949, when United States population was 31 million less than in 1960, and the closing war years of 1944 to 1946 when the nation numbered 41 million fewer consumers, showed less production of cloth. Production per caput of population for 1960 set a new low mark of 66.55 yards against 70.04 for 1959, 66.81 for 1958, and 76.93 the ten year average.

Although total production was on the low side, and most major divisions were down from the previous year, 1960 showed some advances and in fact new production highs in a few areas.

Cotton Fabric Output

In cotton goods total production of 9,328,279,000 linear yards was down 276,399,000 for the year, but held at better than the 1958 level. The most noteworthy performance, reflecting a continuance of a long term upward trend in combed yarn goods, was shown by fine cotton fabrics which set a new all time high in 1960 of 1,661,039,000 linear yards, a gain of 52,359,000 from the previous year. The major print cloth division, however, at 3,306,789,000 lost 76,060,-000 yards and registered a new low since 1949. Colored goods fell to a new all time low point of 455,270,000 yards, off 64,461,000 for the year, although it should be noted that the Government classification here covers mainly carded colored goods, considerable combed dyed yarn fabrics being reported in the fine goods grouping. Other major cotton goods divisions were all down for the year although not to as low a point as in 1958.

In manmade fiber fabrics excepting rayon and acetate goods, production continued its almost constant annual increase which has carried these goods from their pilot stage around World War II to a new high for 1960 of 939,252,000 yards or well on the road to the billion yard level. Their gain from 1959 was 102,975,000 yards or 12.3 per cent. But rayon and acetate fabrics at 1,428,044,000 were at a new low for the 20 year period. Filament yarn fabrics were at a new record low; spuns the lowest since 1946; combination fabrics lowest since 1941. Pile, upholstery, drapery, tapestry, and tie fabrics, and the all other classification of rayon-acetate goods while off for the year held at better than the 1958 level.

Woolen and worsted woven goods showed 283,295,-000 yards for the year, off 27,536,000 from 1959.

Automobile tire cord and tire fabric not included in the broad woven goods data dropped to 418,439,000 pounds for the year, off 51,195,000 pounds, with both the cotton and manmade fiber components registering losses.

NAWM Annual Meeting Hears Reports On Laminates, Outlook for Wool

A seminar on laminate and stretch fabrics was a feature of the recent 96th annual meeting of the National Association of Wool Manufacturers in New York. J. B. Goldberg, New York textile consultant, who served as chairman of the seminar, said "use of polyurethane foams for laminating with apparel fabrics started in this country only a few years ago, primarily to provide a new form of lightweight thermal insulation for use in outerwear," and "they appear to be finding ready acceptance in meeting the demand for insulated garments with a minimum of added weight."

Other speakers outlined the advantages of the foam, pointing out its excellent resistance to water, salt solutions, synthetic detergents, boiling water and steam and moderate resistance to dilute acids and alkalies.

Alfred Eisenpreis, director of research of Allied Stores Corp., suggested to the wool textile manufacturers the following 4-point program to replace what he called the industry's "negative" attitude toward both domestic and foreign competition:

1—identify consumer markets and buying patterns as the basis for specific aggressive marketing; 2—sell your products to the ultimate consumers; 3—emphasize fashion and quality features, and 4—think of yourself and your industry in terms of growth.

Edwin Wilkinson, full-time chief executive officer of the NAWM, was renamed president and Glen F. Brown was reelected secretary-treasurer. Elected as vice presidents were: Hugh G. Chatham, Chatham Manufacturing Co.; Roger M. Grimwade, Charlton Woolen Co.; Herbert Pleet, Yorkshire Worsted Mills; Frederic W. Tipper, Cascade Woolen Mill, and Horace C. Weston, Mayflower Worsted Co.

William Davis, Bachmann Uxbridge Worsted Co., was designated as the new chairman of the Collateral Group, an organization of younger wool millmen and sales executives affiliated with the National Association of Wool Manufacturers.

Howe Named Director

Frederic C. Howe, Jr., president of Crompton & Knowles Corp.. has been named to the board of directors of Societa Nebiolo, Turin, Italy. He is the first American industrialist to be named to the company's board, which produces graphic equipment, textile machinery, machine tools, type faces and iron castings. Societa Nebiolo manufactures Crompton & Knowles weaving equipment under a license arrangement for European sales. None of its textile machinery production is exported to the U.S.A.

An MTM comprehensive report **PART TWO**

SUPPORT STOCKINGS

By George A. Urlaub
KNITTING INDUSTRY CONSULTANT

ELASTIC STOCKINGS have been made for many years on flat-bar full fashioned frames and machines; on Lamb-type, V-bed machines, and on certain circular hosiery machines. The flat-bed machines have been mostly the Burson and Dubied makes using latch needles since their gauge limitations are of no consequence in elastic stockings. The full fashioned machines have been either hand or power-driven, of the pre-Cotton as well as the Cotton-type, using spring-beard needles. The circular machines have latch needles and are 4 to 6 inch cylinder machines, of the B-5 or earlier and similar gore-fashioning types, with or without selvage set-up device. These circular machines make both men's and women's surgical types of elastic stockings.

Except for the more recent rubber and semi-rubber styles, most of the elastic stockings for women have been made on V-bed flat machines. One is a specially built Swiss machine on which knitting is done from the top down and with hand transfer of the fashionings. The other is the Burson machine which knits automatically from the toe up and fashions by needle additions at one side, corresponding to the back of the stocking. In either case, the fabric is produced as a tubular, plain-knit web, automatically or hand fashioned to shape in the knitting, in the toe, heel, calf, flare and top. Where the toe and heel pockets are formed, the fashioning is done on both needle beds, inside the fabric instead of at the side. On the Burson machine the fashioning mark is a more pronounced hole due to the spread sinker loop over to the next added needle and to the opposite needle bed. In the Swiss machine, we have the regular double-loop narrowing mark. These flat-bed stockings are easily identified by their usual hemmed welt or looper seam and by the absence of the heavy seam which many wearers find objectionable. Heavy seams in the all-nylon support stockings are the result of joining the heavy 60-denier fabric of the full fashioned blank. Multiple-end knitting also causes some selvage difficulties which are overcome by the deep bite on the cup-seamer. Both for esthetic appearance and the comfort of the wearer the seam must be as fine as possible.

Because already there have been complaints from numerous sources about the heavy seam under foot in standing and walking, and the ridge formed up the leg of the full fashioned support stockings, two lines, Lift and Triumph, are featuring their fine seams, for "beauty" and "comfort". Lift uses their patent Reissue #24,737, for this.

Full fashioned support stockings are in nearly all cases made on 51 gauge machines, some with auto-welt and some manual welt-turning, with 14 and 14½ inch needle-bars. In the case of the Triumph outsize number, this is made on full outsize machines with the 16-inch needle-bars. Except for Kendrick's "Kennit" and "Kenlite" surgical lines in their Extendo-Top, Triumph's outsize is the only extra wide and true outsize construction we have found thus far in these goods.

As said above, the men's surgical socks, and a few ladies' heavyweights, are made on regular small diameter, coarse needle, half-hose machines. How-

FIGURE 5—Model wearing Burlington's Support Stocking on her right leg and a regular nylon stocking on her left.

ever, ladies' all-nylon circular-knit support stockings are being made by Ironwear, NuMaid, Burlington, Hanes, Diamond and Lift on modern types of 400-needle machines. The Lift stocking is in a micro —texture stitch effect.

Acme-McCrary, Adams-Millis and Hudson are in early production stages with seamless support numbers, and we find representative buying groups currently wear-testing and evaluating them.

The 400-needle support stocking may also be a hedge for some mills for the time when machine deliveries and production output catch up with the market for 15 denier 400-needle goods. Availability of added 400-needle production, more 474-needle and finer goods coming into the regular market may serve to speed up the task of overcoming present technical difficulties and bring more seamless support hose into the market. Some mills will also find that the 3¾ inch cylinder of this machine poses a welt fabric problem when compared with full needle-bar welts off the full fashioned machines for making the two larger leg sizes of support stockings, and thus will make these goods on 474 needle machines.

What Support Stockings Can Do

The non-rubber support stockings which are made of all-nylon high-torque yarns, by their suppressed elastic factors and their coordinated fabric constructions, do have a certain degree of compression when worn. The construction factors, explained in the previous section, not only resist distentions of the fabric, but also produce more or less compression by physical forces present in the yarn filaments which want to contract to the dimensions the yarn and fabric had when it was heat-set.

The amount and degree of compression varies from wearer to wearer in direct proportion to the amount of fabric displacement by the leg dimensions of the individual wearer. It is, therefore, more important in these stockings than in regular nylon hosiery that a properly proportioned leg size be provided in addition to the foot size. When this is done there is a considerable feeling on the part of the wearer that the stockings do something for her tired legs. Who is there to say that this does not have some therapeutic value, even if it does not cure varicose veins?

It is a mistake to consider the present all-nylon support stocking as a substitute for the generally known and accepted "elastic stocking". This writer also feels that clever advertising gimmicks, half-truths and subterfuges should be avoided. Especially to be avoided is the "medically accepted" and "approved" designations in promoting this product. The all-nylon support stockings can only do so much and no more. They can relieve simple leg fatigue and tired legs in many cases of less severe leg troubles, and this should justify their place in the support stocking market.

"Medical acceptance" is mostly taken to mean acceptance by the American Medical Association. We have learned that the approved status by the A.M.A. for such products as support stockings was discontinued about five years ago. Therefore, unless statements of "medical acceptance" are qualified by inclusion of the authority behind them, they are meaningless and might be considered to be misrepresentation by the Federal Trade Commission. In this respect, two leading mills are now making a special point of this in their consumer promotions. Diamond's packing includes the following in a conspicuous place. "PLEASE NOTE: Fruit of the Loom support stockings are not a substitute for heavyweight surgical stockings." Burlington's booklet, entitled "The Fashionable Answer to Leg Fatigue", packed with every pair, tells the consumer, "Burlington Support Stockings are *not* a substitute for heavyweight surgical stockings. If you have any questions regarding what type of support hosiery you ought to wear, be sure to ask your physician for his advice."

What Support Stockings Can't Do

These support stockings of all-nylon are not all they are supposed to be, according to some authorities. Some of their proponents have led us to believe that they could take the place of the "rubber stocking" for those who suffer from leg pains due to circulatory troubles of pathological or occupational reactions. Many authorities tell us that this is not so.

The support stocking should, therefore, be promoted only to relieve simple leg fatigue and not as a substitute for elastic hose. It is upon this basis that it is getting the acceptance it enjoys rather than as a cheaper substitute for the more expensive surgical stocking, as some had tried to sell it.

Surface varicose veins in the legs cause pains and discomfort. Varicose veins result where the functioning of the minute valves in the veins is impaired which in turn causes blood to accumulate there and enlarge those veins. If this condition is continually aggravated and neglected, enlarged veins often rupture, and form varicose ulcers.

For a hundred years and more, physicians have recommended rubber elastic stockings as a therapeutic device, mechanical in nature, to reduce the diameter of the surface veins so affected in the legs and to increase the flow of blood through them. Certain circulatory troubles associated with pregnancy causing vein swelling and later possible varicose veins have also been treated by wearing rubber stockings. Mild phlebitis is also treated by their use.

Professional workers, salespeople, and many others whose occupations require long periods of standing are very often subject to leg cramps and fatigue. When they are thus bothered with "tired legs", this has a marked effect upon their well-being and accomplishments. Here lack of the movement of leg muscles, needed to help the blood flow back to the heart, too often causes leg veins to be impaired.

The medical profession has for many decades recommended "elastic stockings" because properly made and fitted rubber stockings provide the pressures which help maintain an adequate flow of blood in the legs by reducing the diameter of the surface veins. The semi-massaging effects of the compressive restriction of tissue and muscle in the leg movements of persons in a standing occupation may also contribute somewhat to the relief accomplished.

As noted earlier, some authorities do not accept the non-rubber stocking as accomplishing therapeutic results for the wearer who needs relief from circulatory troubles. Medical authorities emphasize that rubber stockings alone will accomplish this and we must agree when there is a serious leg circulation deficiency.

As human leg dimensions vary greatly, and as all leg troubles are not the same, persons so afflicted

cannot be clinically fitted with the average-dimension stocking constructions of the hosiery industry. These did suffice where we had normal stocking fabric, whose needles, yarns, courses and dimensions allowed the fabric to migrate as needed for perfect fit, but this has all been changed now by all that has been taken out of the support construction.

Expert customer fitting as practiced by the surgical and elastic stocking makers is a must. Even department stores bidding for this business of their customers, have expert factory trained fitters on duty and fitting rooms in their surgical supplies departments. But, as we said above, there are many cases where full correction is not necessary and where a lift from an all-nylon support stocking will have beneficial results. And would not the psychological effect also have some therapeutic value for the product?

Some Patents

The matter of patents is covered at length because many in the trade feel this important new hosiery development has now been thrown to the wolves to pick to death by the recent Federal Court decisions declaring invalid U.S. patent 2,841,971. This is far from being the case in toto, and until it has reached the court of last resort there is too much at stake for everybody to rush to get into the act.

It must also be remembered that production of non-rubber support stockings has had the serious attention of millmen and others for the past five years and more. That these efforts have been successful is found in the many patents for yarns, fabrics, methods and stockings, of which the following are some:

It is interesting to note that textile fibers "twirled, twisted or curled so tight as the materials will bear" form an important part of a very old English patent. Dr. Vanbutchell, in his patent, No. 1404, of 1783, used these to produce "Spring bands or fastenings for the apparel or furniture of man or beast" including "stockings."

As Vanbutchell, above, is the great-grandfather of spring band effects in hosiery made of highly twisted textile yarns, so Wm. M. Cameron's British Patent 301,488, of May 2, 1930, is the father of stretch yarns in our present day hosiery. Cameron found that "yarns of continuous artificial fibers (twisted) to 30 turns or more—possess greater mechanical strength" in hosiery, which is "more elastic" and has much better fit "imparted owing to the yarn exacting its contractile properties." The companion U.S. patent is Cameron & Williams, 1,884,560, issued October 25, 1932 for "Hosiery".

Since then, as is always the case when new ideas come into the market, we have had surges of improved stretch yarns of one kind or another, and still more improved yarns, methods, and products. The list is too long to be included here. Suffice to say, however, that there are a number of patents still in force which cover specific products or methods, involving hard-twisted yarns, alone, in combination with S and Z, and with rubber, etc., that it is well for millmen and others to satisfy themselves, by legal advice, warranties, and otherwise, before going ahead blindly in making and promoting support type hose which they know to be already in the market.

U.S. patent 2,102,730, Meyers, Dec. 21, 1937, stocking, makes use of multiple bands of courses, consisting of right and left-twisted yarns, for increased elasticity, particularly in the welt, "possessing the required elasticity to properly engage the limb of the wearer without the necessity of incorporation of elastic in the knitted structure."

U.S. 2,641,914, Neumager, June 16, 1953, is for a "method of producing stocking for varicose veins" knit of "twist superpolyamide thread, etc."

U.S. 2,702,998, Purcell, March 1, 1955, is for a "surgical stocking" in which the leg especially is knitted of alternating courses, or series, made of polyamide or polyester crinkled yarn of the heat-set types, and rubber yarn. The object of this method is to reduce the fabric weight by the interspersed courses of rubber and non-rubber yarn, while at the same time improve the feel and appearance without limiting the capacity of the rubber yarn to stretch.

U.S. patent 2,714,757, Leith et al, Aug. 9, 1955, is for the modified filament yarn of the Lift stockings, while U.S. 2,755,616, Weller, July 24, 1956, is for another method of twisting thread. No. 2,771,758, Weller, Nov. 27, 1956, is for a "lady's stocking having stretchable zone."

U.S. 2,771,757, Burleston et al, Nov. 27, 1956, is for a stretchable stocking, made of S and Z twist mono-filament nylon yarns possessing increased elasticity, with reverse twist yarns knitted in alternating courses. No. 2,771,759, Leath & Bobo, Nov. 27, 1956, is for a stretchable, retractable stocking knitted of alternating oppositely twisted synthetic resin yarns, under which license Manchester makes their Ironwear and NuMaid support stockings.

U.S. 2,832,125, Knohl, April 29, 1958, is for a plated knitted garment and method, of two oppositely twisted yarns (between 25 and 100 turns per inch) in superimposed relationship in each stitch. Knohl's 2,883,842, of April 28, 1959, is for a surgical stocking made of very fine thin coated elastic yarns (covered yarns) plated with Helanca type yarns. Baker's 2,901,901, of Sept. 1, 1959, is for a below-the-knee stocking which has a horizontal elastic calf-gripping zone, made by plating heavier non-elastic yarn over an inner elastic body yarn with a non-elastic lower leg zone.

Spandex Yarn Patent

Even Du Pont's newest spandex yarn, Lycra, is part of a patent for elastic garments, including ladies' sheer stockings. This is in Knohl's, 2,962,885, of Dec. 6, 1960, which is for the combination of nylon yarn, such as 30-turn, 20 denier, monofilament, laid into the fabric on alternate needles, in hosiery knitting machine, with 75-denier Fiber K, the earlier name for Lycra.

U.S. patent 2,948,132, Gift, August 9, 1960, is for a surgical stocking having courses knitted of covered rubber, alternating with courses knitted of all-nylon yarns, consisting of plain nylon doubled with stretch type nylon yarn.

Of course, there is still U.S. patent 2,841,971, Bird et al, of July 8, 1958, for a compressive stocking, the one under which the Supp-Hose are made. Here multiple ends of non-plied torque mono-filament yarns are knitted in alternating bands of S and Z twist. This particular patent has been the basis for two industry-wide lawsuits in which there have been decisions declaring the patent invalid. We would like to warn all concerned with making of non-rubber support stockings of the following facts. These actions have not yet been decided by the court

of last resort; that the Greensboro Court's decision is a rather complicated one which may require a further court ruling for clarification; that it would not be prudent to assume that this patent is entirely without effect, and to do otherwise must be upon the basis of a calculated business risk.

In view of all the above, mills should not allow themselves to be stampeded by a promoter who insists that since the mill has made stretch stockings in the past, has that technical know-how and the stubby leg-forms necessary, it is a simple matter to put these S and Z yarns on their older 51 gauge machines to make support hose at a cheaper price, now that the Supp-Hose patent has been declared invalid. There is more to it than this.

Market Development

There are now three kinds of support stockings in the market. They are: 1. the usual rubber elastic surgical kind made of covered rubber yarns, alone or with cotton and nylon yarns in the body; 2. the combination of fine nylon covered rubber yarns with stretch type nylon yarns, and 3. the newer all-nylon, non-rubber torque yarns.

The volume of the elastic-stocking business is far greater than can be imagined by hosiery people generally. In fact, there are no less than 26 mills in the United States and Canada making them for the trade, which includes a number of department stores. It is interesting to note that one of these mills, namely James R. Kendrick Company, of Philadelphia, was 100 years old in 1953. A look into the large city classified telephone directories will surprise us by the number of retail outlets catering to this important market, which has a high-per-unit sales ticket.

Several years ago this writer was consulted by a large surgical goods manufacturer regarding production of stretch nylon non-rubber elastic stockings. These did not come into being due to the company's decision that such a stocking would not have sufficient therapeutic properties to justify production plans, despite its esthetic values. Since then other and semi-rubber stockings have come into the market for the surgical trades, as shown in the patents section hereof.

As it has often been emphasized, a well-dressed lady wears stockings and does not go bareleg. Fashion experts and hosiery stylists have been too long concentrating upon that wisp of color in a stocking so sheer as to make it appear only a few feet away that the lady had no stockings on, but colored leg make-up. Now the lady wears stockings again which at a few feet away do not look any heavier than the semi-service sheers and dark tones of yesterday. And if the lady is wearing the new support stockings they do not have that rubber stocking look. (For confirmation of this see Figure 5.)

According to well informed sources, nylon support stockings at present account for about 5% of the hosiery volume in a number of leading stores. This estimate seems a little too high but our sources say it is so. And when an item reaches this proportion it is here to stay. We can, therefore, look to this stocking to find a satisfactory level in consumer acceptance for a long pull. When the neighborhood stores of the large metropolitan centers take it up, as they have not yet done fully, we will see an amazing jump in its sales during the next few months. The leg-hugging effect of the stretch nylons can be considered the forerunner of this trend, and some customers who got a lift from the too small and tight-fitting stretch stocking have gone over to the more lift of the support type.

When non-rubber support hosiery first came into the market there were many who were carried away by its therapeutic properties. However, some elastic stocking wearers, being accustomed to their kind of stocking, soon found the absence of rubber yarn in the new type not to their liking and have gone back to their former type. Others, whose leg troubles were not so severe, have obtained satisfactory results in the part rubber type and many of these also reported getting relief from the non-rubber type.

By far the greatest market for non-rubber stockings seems to be women who are not pathological cases but who just suffer from tired legs, the results of their work or everyday activities. Some women also report that the heavy denier construction has greater warmth for cold weather wear. Others who do not seem to be tired leg customers find greater economy in this new style over the ultra sheers they formerly wore for everyday use. In the case of the men's type, we have seen signed reports where this heavy denier non-rubber sock has replaced the rubber stockings in many cases. The economics of the continual wash-and-wear daily cycles also make the rubber stocking an expensive item.

Good Fit is Important

Since the customer buys the new support stocking at a higher price than regular hosiery, to get some therapeutic benefits, it is well that this stocking should perform to its best possible advantage when worn. The chart, in Figure 1 (MTM June '61 p. 42) which is reproduced by special permission from the Kendrick Co., shows the importance of fit in surgical stockings and the area and dimensions which must be fitted properly. This also emphasizes why the earlier production attempts of small medium and large sizes for these stockings were not sufficient. It is to be hoped that no more of those ill-fitting goods and experiments find their way into the market to be promoted at cut prices in discount stores to plague us again.

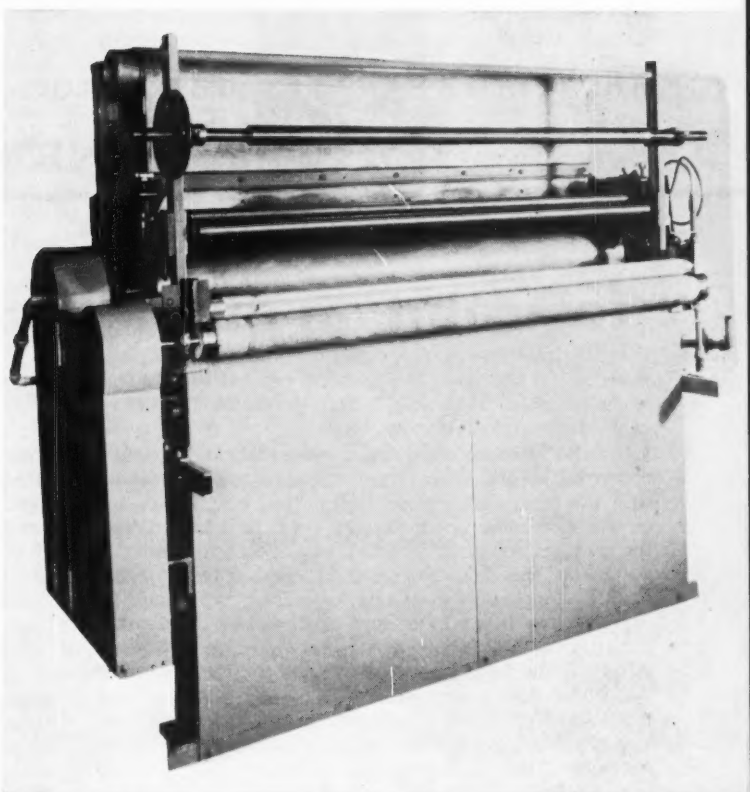
Buyers should insist on having their salespeople consult the size charts for each line they sell to insure proper customer satisfaction and freedom from complaints on this high-priced stocking. The average sales ticket will justify all this. Support stockings are a quality product and offer a chance to upgrade at all levels. Tremendous costs go into the development, the materials, production and quality controls, the making, finishing, packing and selling of this new product, and therefore it cannot be made and sold cheaply.

If the making and selling of all-nylon support type stockings and socks are handled properly and high standards are sought and achieved at each level, it will form an important segment of the hosiery and elastic stocking markets. It will find a place of its own for those who do not yet need real surgical stockings, and it will not displace the latter from its entrenched medical and surgical markets. ■

All rights in this article, "Support Stockings", including Part One, which appeared in the June, 1961 issue of MODERN TEXTILES MAGAZINE, are reserved by the author, George A. Urlaub, including translation into foreign languages.

EMCO Laminating Machine

New machine will join knitted, woven or nonwoven cloth to foam



Staff Prepared

A SELF-CONTAINED, wholly integrated machine for laminating foam materials to fabrics is now being manufactured by Edge Machine Co., The Bronx, New York City. Developed and patented by Kurt Schlegel, president of Edge, the machine will join knitted, woven or nonwoven cloth to foam. For bonding the foam to cloth, the machine uses the flame-bonding technique. According to Schlegel, however, the machine, tradenamed "Emco", can also be fitted with devices for bonding the foam to cloth by wet and dry adhesives.

In operation, the machine functions in a simple manner. From separate rollers attached to the machine, foam and fabric are fed into the heat zone. Here the adhering of foam to fabric is achieved by flame-melting of the foam with a special burner designed and patented for this purpose. A pressure roller then brings foam and fabric together to create the laminate. A special water-cooled roller on the machine is constructed in a way that keeps one side warm and the other side cold to just the proper temperature in order to allow the urethane foam to remain hot long enough for a proper cycle of joining with the cloth and then go through a cooling cycle on the same roller.

According to Schlegel, the burner on the machine is constructed in a unique manner to prevent it from warping under extreme heating conditions. In case of a stoppage, the flame will instantly turn from hot to cold, thereby preventing any overheating of the foam. There is also a compressor blower and mixing chambers for correct mixing of gas and air to provide a steady flame with a zero cut-off—a safety feature which stops the gas instantly in case of any trouble in the motion of cloth or foam. The machine has automatic relighting after emergency shut-down or for normal starting.

After cloth and foam are bonded on the machine, the completed fabric-foam laminate drops loosely into a basket. This is said to be better than a take-up roll since the dropping of the laminate loosely into the basket facilitates curing. The curing is "self-curing" at room temperature for 20 minutes. The cloth is then wound up in a roll and trimmed.

The machine is made in two sizes—60 inches and 72 inches. Approximate dimensions of the 60-inch machine are seven feet wide, eight feet long and seven feet high. The 72-inch machine is one foot longer. Production on either machine is said to be from 50 to 80 feet of laminate a minute. Prices are approximately $10,900 for the 60-inch machine and $11,800 for the 72-inch model. Currently the machine is being distributed by Certified Manufacturing Co., and K. P. Williams Co., Inc., both of New York City.

In noting that the Emco machine can be used for both flame and adhesive bonding, Schlegel points out that liquid adhesives have the advantage over the flame method in that no foam is lost; a disadvantage of liquid adhesives, he points out, is that they may impart an undesirable stiffness to the cloth, and close the pores of the foam so as to reduce its "breathing" function. Flame bonding, he points out, tends to open the pores of the foam material. *For further information about this machine, readers are invited to write the editors.*

THE TEXTILE DISTRIBUTORS INSTITUTE, INC.

NEWS AND COMMENT

Restraint on output held vital

By Irving Roaman,
PRESIDENT, TEXTILE DISTRIBUTORS INSTITUTE

DISTRIBUTORS OF MANMADE fiber fabrics are encouraged by the reports from economists and others that the business recession which has plagued us for over a year now is practically over. It is hoped that the predictions that general business will improve from now through next year will prove accurate for textiles and textile products.

Converter inventories are certainly in managable condition and there do not seem to be heavy stocks either at the mill level or with cutters. On the other hand no intensive buying, either by stores or garment manufacturers, has developed up to this moment—though there has been some quiet improvement over recent months.

Although imports are down somewhat from the extremely high level of last year, the impact of the flood that came in then is still being felt and the scars will not be too quickly removed. Another upsurge in business is likely to bring an upturn in imports—and so far no effective action has been taken by the Government in spite of the unanimous pleas of all segments of the textile apparel industry.

Because of the inter-relationship between all fibers, excessive inventories of cotton fabrics are a matter of concern to manmade fiber fabric distributors.

Inventory Curbs Still Lag

Time and again, representatives of The Textile Distributors Institute have both privately and publicly urged mills to avoid policies which lead to excess production. It is disappointing that so little tangible results have been forthcoming in an area where the need for action is so obvious and the method of attainment so simple.

The inventory position of the textile industry is the total amount of goods made and not yet consumed—no matter in whose hands the ownership may lie. During times of relatively good business. mills are able, due to the desires of converters and others to maintain "position." to exact long, forward contracts—in spite of the fact that their yarn requirements come to them virtually on a month-to-month basis. Substantial forward business encourages mills to step up production because they have contracts covering production plans. If, as is frequently the case, the converters have somewhat overestimated their requirements and greige goods begin to pile up, either with the converter or on a bill-and-held basis, this fact seems to remain unobserved by the mills who continue to grind out their goods as if the primary sale had determined actual consumer off-take.

Of course there are exceptions to this rule and some mills do make somewhat of an effort (especially in specialty cloths) to gear production to actual market requirements rather than to forward contracts.

It seems obvious that inventory accumulations and subsequent market weaknesses are a result of very small increases in production levels. It continues to be a mystery to this writer why mills have not found more workable solutions to this problem.

It is not suggested that concerted action be taken; but it would seem that when statistical information, readily available to all, generally shows a fairly obvious trend, business judgment ought to determine action rather than the competitive instinct to run machinery at a higher rate of operation than one's competitor regardless of profit results.

Orderly markets and profit potentials are best realized during times of market stability. Of course profits accumulate during rising markets, but they more than disappear during declining markets. We would all settle for stability and this should be the goal of all in the textile industry rather than the dog-eat-dog attitude which has characterized so many major decisions.

Perhaps one mill may feel some advantage may accrue through running at a higher level than a competitor; but the sad fact seems to be that when earnings are down for one, they are pretty much down for all.

With the revival of consumer confidence which seems now relatively assured, the outlook for the next six months and thereafter for the distributor of manmade fabrics is certainly improving and with it the potential for higher profits.

The Textile Distributors Institute continues to serve the interests of distributors of manmade fiber fabrics. It time and again proves its importance as a major influence in improving the business practices which mean so much to all of us. It certainly merits our interest and support.

TDI Bulletin on Shipping Charges

A recent bulletin issued by the Textile Distributors Institute discussed the question: "Who pays freight and shipping charges on finished goods sales?" As a service to the textile industry, publication of the full text of the bulletin was authorized by Miss Hilda A. Wiedenfeld, executive director of TDI. The text follows:

"We have called to your attention from time to time various contract and sales provisions which customers of finished goods distributors have been seeking. We believe one of the most beneficial functions that the Institute can serve is to notify its members promptly on these subjects so as to be aware of customer requests and developments as they happen.

"A more expensive demand from customers has been made recently which deserves your consideration. One or more cutters have requested that a new practice be followed pursuant to which merchandise would be shipped to them with freight costs prepaid by the distributor. As you know, the established practice has been to the contrary for many years.

"This is the type of request which some customers make in a period of weak prices and high operating costs. It goes almost without saying that leading distributors to whom this request was made have absolutely refused to ship such customers freight prepaid even though the customers indicated that they might agree to have the invoiced price of the goods increased by a certain amount to cover the approximate freight charge.

"It should be pointed out that actual absorption of freight costs for certain customers and not for others has been held to be a form of discriminatory practice and in violation of applicable provisions of the Robinson-Patman Act; it would also be a violation of the Federal Trade Commission Rules applicable to our industry.

"Examine purchase orders and offers of your customers carefully to make sure that you know, before accepting any offer, whether you are obligating yourself to pay for the finished goods freight or delivery costs and whether your customer is attempting to have you follow a procedure which eventually may lead you to absorption of all freight and delivery costs. Know your costs.

TDI Musical Show Wins Applause

A musical review featuring outstanding songs and comedy turns from earlier Golf Tournament shows was presented this year by members of the Textile Distributors Institute at its annual Golf Tournament at the Concord Hotel, Lake Kiamesha, N. Y., June 14 to 16. As in previous TDI musical shows, the main theme of the songs and skits was the follies and foibles of the textile industry. An audience of more than 300 members and guests applauded the performance with great enthusiasm.

Among the participants in the show, which was staged on the evening of June 15, following the annual Golf Tournament Dinner, were Irving Roaman, Reliable Textile Co., president of TDI; Herbert Robbins, Cohn Hall Marx Co.; Bruce Roberts, Eastman Chemical Products; Andrew Sokol, J. P. Stevens & Co.; Morton Goldman, Cohn Hall Marx; Louis Brenner, Shirley Fabrics Corp.; Joseph Carvin, Eastman Chemical Products; Donald Holmes, the Du Pont Co.; Van Dionne, Reeves Brothers; Bud Schlesinger, Chemstrand Corp.; Standish Holmes, American Enka Corp.; James Lederer, Burlington Industries; Alex Ix, Frank Ix & Sons, and William Luttge, Chemstrand, as well as a number of others.

Haskel, Powers Golf Winners

Winners of the annual Golf Tournament of the Textile Distributors Institute in June were Merwin Haskel, Cohn Hall Marx Co. and Richard Powers, Celanese Fibers Co. The tournament was held at the Hotel Concord, Lake Kiamesha, N.Y. Haskel, who shot an 81, took possession of the Herman Chopak Memorial Cup. Powers won the low gross tournament for members with a 75. In the competition for TDI guests, Thomas C. Worth, Jr., American Viscose Corp., won low gross with a 74.

Other winners in the Class A competition for members were Ernest Miller, Burlington Finishing Co.; second low gross with 80; Sheldon Joblin, Burlington Shirting Fabrics Co., first low net with 81-12-69; J. M. Ulmer, the Du Pont Co., second low net with 81-12-69 and Charles W. Carvin, Sr., third low net with 81-13-68.

Bridge Tournament Popular

An added feature at the TDI Golf Tournament this year which proved popular with guests and members was a contract bridge tournament held at the Concord, the locale of the golf tournament.

Sitting in the East-West position, the winning pair was Sam Kolber, Cantor-Greenspan Co., Inc., and Sylvan Gotshal, Weil, Gotshal & Manges. The North-South match was won by Merwin Haskel, Cohn-Hall-Marx Co., and J. C. Cook of Celanese Fibers Co.

Honorable mention was achieved by Herman Weil, J. P. Stevens & Co., Inc., and Henry Kramer, Deering Milliken Co., Inc. Others awarded honorable mention were W. T. Dodge, Klopman Mills, and Irving Brawer, Brawer Brothers. The bridge tournament was arranged by Chairman Arthur Raphael, Cameo Fabrics, and Co-chairman, Ira Jacobson of Cohn-Hall-Marx. Iselin W. Simon directed the tournament.

Spears Debates Imports

Jackson E. Spears, vice president of Burlington Industries, Inc., and active in the affairs of TDI, took part in a debate on television on June 10. The topic of the debate was: "Does the United States need a more restrictive trade policy?" In the debate, which was broadcast over Channel 4 in New York City, Spears upheld the affirmative. The negative was upheld by Charles H. Percy, chairman of the board, Bell & Howell Co.

Three New TDI Members

Three firms have been admitted to membership in the Textile Distributors Institute.

The new members are: Travis Fabrics, Inc., 1071 Sixth Ave., New York 18, N. Y. of which David A. Travis is president and Maurice Josephberg, comptroller. The firm distributes men's, boys', women's, girls' and home furnishings woven and knitted fabrics, and also fabrics for over-the-counter sales.

Stretch Manufacturing Co., Inc., 115 W. 30 St., New York 1, N. Y. of which Arthur Weinberger is president and Milton Hinkus, secretary. The firm manufactures a wide range of stretch fabrics.

Greene, Oelbaum & Co., 1412 Broadway, New York 18, N. Y. of which Robert Oelbaum and Wil Greene are principals.

Belding Heminway

(Continued from page 22)

the natural order of progress, moved into converting, and from linings for handbags they broadened out into luggage linings, drapery and bedspread fabrics and coverings for umbrellas.

Among the first firms to handle large quantities of rayons and acetates for their trade, Hausman was also one of the first customers of such pioneer rayon weavers as Burlington. After the death of Morris Hausman in 1932, his three sons carried on the business, expanding their operation through the acquisition of mills to produce some of their own needs in fabrics. A half century of steady growth, marked by the solidest kind of business integrity and rock-ribbed stability, brought the firm of M. Hausman & Sons to a quiet, unpretentious eminence in the area of fabric converting that has been their specialty. Today in their somewhat cluttered but busy offices on the ground floor of 10 East 32 Street the Hausman brothers, supported by a third generation of keen college-bred sons and nephews, run their business with a rough-and-ready individualism that flows from the confidence that has accrued to the firm over its decades of steady success.

The Hausmans moved into Belding Heminway by gradual stock purchases beginning a few years back when, almost accidentally, they acquired a few shares. When the death of Ray Kramer, for many years a large stockholder and Chairman of Belding, released a block of stock on the market, the Hausmans bought it and began to take an interest in the Company in real earnest. Additional stock purchases were made until the Hausman holdings came close to 40% of the total stock of Belding, and the merger then took place. Sam Hausman became a director and chairman of the Belding executive committee; Jack and Leo Hausman became directors and vice presidents.

In April, 1961, Richard T. Kropf became President succeeding Fred L. Johnson who had been President since 1949. Mr. Kropf joined the Company in 1931 after graduating from Massachusetts Institute of Technology as a mechanical engineer. For Belding, Kropf in the 1930's set up a research department which since then has been a pacesetter in developing both new products, particularly sewing threads, and in devising better methods of manufacturing threads.

Under his guidance, Belding Heminway blazed a path in successful research that has led thread manufacturing from its traditional empirical methods into the age of science applied to industry. One of the great achievements of this continued research effort was the development, with the advent of nylon, of Belding's bonded nylon thread (Nymo) made of nylon multifilaments bonded together with a liquid nylon solution. The major advantage of this thread is that it is free from twist and thus functions better in high speed sewing in a wide variety of applications in apparel, shoes and industrial uses where thread is needed.

As an outgrowth of the success of its bonded non-twist nylon monocord, (Nymo) Belding in 1951 built a new plant at Hendersonville, N. C. which was the first highly automated plant for manufacturing thread erected in the United States.

Enter Nylon Plastics Field

Belding's immersion into nylon technology as a result of its work in developing Nymo thread led the Company into the field of nylon plastics materials. In 1955, under license from Du Pont, Belding set up a subsidiary, Belding Corticelli Industries, Inc., to make Type 8 nylon in liquid, granular and pellet forms for use in industry. BCI nylon is a plastic with many diversified uses in extrusion, injection and compression molding as well as in aqueous and solvent systems. It is sold for use in the rubber, wood, textile, paper, leather and plastic industries. Broadening its range of products BCI has announced its further expansion in the field of nylon engineering materials. Familiar forms of BCI nylon are gear

(Continued on page 52)

Leo Hausman

Jack Hausman

PAPERS OF THE
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AATT

The expert witness in ARBITRATION and LITIGATION

Here are some insights and anecdotes shedding light on the conduct of disputes over textiles

By J. B. Goldberg
TEXTILE CONSULTANT

MOST CONTRACTS entered into between converters and mills, dyers or cutters contain clauses which specify that any claims or controversies with regard to contract fulfillment shall be settled by arbitration. Disputes may arise regarding deliveries, confinement of style and similar contract terms, but the expert witness is usually called upon primarily for testimony as to the quality or performance characteristics of fabrics or finished items made from the materials in question. Occasionally he may be asked to give expert opinion on recognized trade practice which may be a pertinent issue.

At times, differences arise between mills, throwsters, dyers or processors regarding fibers or yarns purchased by them and these disagreements may also be resolved by arbitration. Terms covering time limitations in making claims for defective fabric, returns, suitability of gray or finished fabrics, the cutting of piece goods, limitations of liability and similar conditions may vary in individual contracts and involve factors which I do not propose to elaborate upon in this paper.

There are two non-profit tribunals commonly used in the textile industry: (1) The American Arbitration Association and (2) The General Arbitration Council of the Textile Industry. In some contracts, the seller has the privilege of indicating which organization he prefers, but in most instances the party first referring the matter to arbitration has the option of designating the arbitration tribunal. The operation of both groups is essentially similar, there being a panel of arbitrators from which the Association or Council may make a selection prior to submitting a list of names to those involved in the dispute. Persons are usually chosen from those branches of the industry in which each of the parties is engaged, e.g., garment manufacturers, converters, mills or dyers and finishers. Each litigant is permitted to cross off the names of individuals to whom he objects, indicating by consecutive numbers those remaining in the order of his preference. The Council selects one person from each list and then submits to them the names of official arbitrators selected from panel groups other than those from which the first two were selected. The third arbitrator is chosen from this group in a similar manner and he is generally designated as chairman.

The arbitrators receive no compensation, except under unusual circumstances in the case of the American Arbitration Association. There are administrative fees specified for each party, based on the amount involved and payable on the institution of an arbitration proceeding. The award of the arbitrators for these expenses may be assessed against one or both participants as they deem equitable. Decisions are made on the basis of a majority vote of the arbitrators and both parties consent to the jurisdiction of the Supreme Court of the State of New York, including enforcement of the arbitration agree-

Mr. Goldberg is a consultant to the textile and allied industries. A graduate of Massachusetts Institute of Technology, he was for many years research director of J. P. Stevens & Co. from which he resigned in 1953 to establish his consulting business with offices in New York City. The author of a book, "Fabric Defects", and many articles and papers on textile subjects, he publishes "Textracts", a monthly summary of textile news.

J. B. Goldberg

Paper presented at the April 5, 1961 meeting of the American Association for Textile Technology at New York, N. Y.

ment and proceedings and entry of judgment of any award. In general, the awards are final and binding and may be set aside in court only when bias, fraud or misconduct of the arbitrators is established.

Last year the General Arbitration Council handled 180 cases with claims involved totaling just under $1 million. The American Arbitration Association, with a National Panel of Arbitrators of more than 13,000 experts in all trades and professions in over 1600 cities in the United States, handles commercial, labor, accident claims, international and inter-American disputes. While a great many cases relating to the textile industry are heard each year, no figures are available on the specific number processed or dollar total of claims instituted.

Conduct of Hearings

Compared with court actions, proceedings are usually quite informal. Although a representative of the Arbitration Council or Association is present to act as secretary, identifying records and documents, there is no verbatim record kept of the testimony during the hearing unless one or both litigants decide to have a stenographer present. It is customary to have all witnesses testify under oath. While cases may be argued without legal representation, the expert witness is usually brought in only when there are attorneys engaged by one or both sides to present the case.

The Expert's Qualifications

In addition to witnesses whom each party may introduce to confirm certain statements or facts, e.g., salesmen, accountants, business associates, customers or industry representatives, in recent years frequent use has been made of expert witnesses to offer testimony in technical matters regarding fibers, yarns or fabric characteristics, manufacturing, dyeing and finishing, quality and performance. This is so particularly if a large sum of money is involved. Although there are many instances in which the expert may be skilled in only one phase of the textile industry, it is readily understandable that the broader his background the more useful he will be to his client as well as to the arbitrators.

It is most important, of course, that the expert be well-qualified by his training and experience, and essential that his qualifications, reputation and integrity are recognized by the arbitrators. When laboratory test results are submitted, it is not mandatory that the person who actually conducted such tests be present to give his testimony, as is required in formal court proceedings. Nevertheless, it is desirable since it affords an opportunity for the attorneys or arbitrators to question the witness or cross-examine him on some of the details of the tests and conclusions.

With all due respect to the excellent facilities of commercial testing laboratories and the competency of their technicians, there are many instances where certain tests are conducted which have no significance or are unimportant in the particular controversy. This may be due to poor judgment on the part of the client who hastens to have tests made immediately without competent technical advice or without indicating to the laboratory what is involved in the dispute. At times some of these test results have been submitted to the opposing party and have actually served to weaken or undermine the claimant's position when the case eventually reaches arbitration or court.

The expert's first contribution may be a review of the facts with the client and lawyer and the offering of advice on the matter of having goods or garments examined or tested and experiments conducted. Based on preliminary discussions and findings, the expert may advise his client that his case is not strong enough to justify entering into litigation.

Apart from the conducting of certain experiments or making of pertinent tests, the expert should be qualified properly to interpret the results of such tests so as to utilize the information to the best advantage. A simple analogy is the utilization of a consulting physician or diagnostician who can advise a patient as to whether he requires certain blood tests or X-rays to help determine the nature of his ailment and who can also interpret the results of such laboratory findings. The tests which have often been conducted in textile materials before an expert is called in are frequently as comprehensive, costly and useless as those made on a patient with a broken leg who had ordered X-rays of his skull, an electrocardiogram and a complete study of his blood circulation. While many litigants feel that they should have had their heads examined and frequently experience an increase in blood pressure when trouble arises with textiles which they have bought, sold or cut, proper advice could often save much time, money and grief.

Incidentally, it is only fair to acknowledge at this time that there are some lawyers who specialize in textile disputes who have acquired a certain amount of knowledge and experience in textile manufacturing, dyeing and finishing, which, in my opinion, qualified them as experts although they may not be permitted to testify. On the other hand, it is understandable that there are often disputes in which the litigant engages the services of lawyers who are most competent in legal procedures, but who do not have a particularly broad knowledge of textiles. Here, of course, the services of a qualified expert are almost indispensible.

Apart from rendering technical assistance in the preparation of a case, the expert may be useful because of his knowledge of limitations of the opposing litigant's experience in certain phases of the industry and the shortcomings of the experts who may be retained by him. He can also be helpful in suggesting questions for cross-examination or otherwise bringing out facts pertinent to technical aspects of the case. During the hearing the expert must not only be competent and articulate in presenting his client's side but must be able to withstand the rigors of cross-examination without "blowing up" or otherwise prejudicing his case. At the same time he should be alert to recognizing any erroneous statements of fact or misinterpretations of data which might convey the wrong impression to the arbitrators. It should be kept in mind, too, that the arbitrators are also qualified and permitted to ask any questions which may help them reach a just decision.

Court Proceedings

Court proceedings, of course, are conducted in a much more formal manner strictly in accordance with established rules of law. Thus, for example, a witness may not testify as to what someone did or said, since such testimony is characterized as "hearsay" and may be excluded from the record. Also, the expert may expect to undergo much more ruthless cross-examination, with a concentrated effort on the part of many opposing attorneys to discredit his

qualifications or reliability before a judge or jury. While he will be protected by the attorney of the client whom he represents or even by the judge when the cross-examination is held to be improper from a legal standpoint, he should expect no mercy from the attorney who is skilled in leading the witness into "dark alleys" and otherwise withdrawing statements which may be harmful. A common fault, against which all witnesses are duly cautioned, is the volunteering of information beyond concise response to specific questions put forth by the attorney in court. It is a great temptation to display one's knowledge and expound at length on what the witness deems is important; but he will be a more useful and wiser witness if he heeds the advice of his attorney and limits his remarks to answering specific questions put to him by either side.

Some Experiences in Arbitration

One of the earliest court cases in which I participated took place over 20 years ago. It had been established that a mill had delivered spun rayon warps to a weaver with the unfortunate mixing of cotton ends along with the rayon. In the undyed state it was impossible to ascertain which yarns were cotton and which were spun rayon without microscopic examination. Those familiar with the dyeing differential between cotton and spun rayon yarns of equivalent size and twist will appreciate the fact that after the warps were woven, the dyed fabrics presented a rather interesting but undesirable striped effect.

There was no question of the mill's responsibility, but the case was argued in court to establish a just allowance for the fault. During the presentation of the plaintiff's claims an expert witness was used to confirm his findings of the presence of cotton ends. I knew the opposing expert quite well and recognized his skill and experience as a first-class microscopist. However, he was drawn into a discussion by my client's attorney for an explanation of exactly how the mill introduced the wrong yarns during weaving. Unfortunately, the witness attempted to explain an operation with which he was not thoroughly familiar.

Knowing the man's background, my suggestion to our attorney was that the expert be asked is he had ever *worked* in a weave room—knowing in advance that he had had no such experience. By chance, the attorney phrased the question improperly and asked "Have you ever *been* in a weaving mill?" I was disturbed by the lawyer's careless phrasing of the question, but much to my astonishment the reply was "No".

Whereupon the attorney countered with "And you are trying to tell the judge and jury that you are qualified to explain how this mixing of yarn took place?". Of course, the jurors laughed and the expert witness was very much upset at the inference that he was not qualified. The point illustrated by this experience is the importance of a witness avoiding the giving of testimony along lines where he is not qualified, particularly in court where the attorney will make every effort to discredit him and make his statements appear ridiculous.

In another court case a converter was being sued by a garment manufacturer because the acetate lining fabrics which he had put into hundreds of men's suits changed from a navy blue to a light tan due to gas fading, a condition about which comparatively little was known 20 years ago. Representing the lining converter, my responsibility was essentially to convince the judge and jury that this was a condition which was the "nature of the beast" in those days; that the garment manufacturer should have been aware of the danger involved and could have used precautions to avoid the discoloration. The color change which took place in his plant before the garments were shipped was attributed to his use of gas irons in pressing.

It was no great surprise that the jury awarded damages to the complainant, particularly when his counsel introduced a few dozen dark blue new suits with contrasting tan linings. However, the sum was far in excess of the actual loss, if one used as a basis the cost of replacing the faded linings. By chance, during the proceedings which took several days, I observed that one of the jurors passed a magazine to another juror one morning. I recognized the publication as the Rayon Textile Monthly opened to a page which could be identified by a particular full-page advertisement. By thumbing through a number of recent issues of that publication, I found that the ad which the juror had apparently read and was calling to the attention of other jurors was one of a dyestuff company extolling the virtues of certain dyestuffs for acetate fabrics.

The wording was such that the layman would deduce that these colors met every standard of fastness. This was contrary to my own testimony which truthfully brought out the fact that there were no better dyestuffs for acetate available. Keep in mind that this was before the days of fume-fast colors and gas-fading inhibitors. On the basis of this observation and on appeal to the judge, our attorney was granted permission to question each juror in private. The astounding fact learned by this interrogation was that the figure arrived at for the award was the total of the amount written down on pieces of paper by each juror divided by twelve. The judge was so incensed by this improper method of reaching a decision that he instructed the plaintiff's counsel that unless an agreement was reached on a more reasonable figure, he would set aside the verdict. A substantially lower sum was agreed upon and the case settled to my client's satisfaction. It is not likely that any expert witness will ever again have such an opportunity to assist his client by playing detective in a court room.

A Confused Expert

Some years ago an arbitration took place between converter and a mill because of the appearance of tight ends in a filament Orlon warp fabric. It was the mill's contention that this fault was inherent in the yarn as supplied by the producer, thus relieving the weaver of any responsibility since it was beyond his control, a specific clause in the contract affording him this protection. Ignoring the question of whether or not his position was justifiable, his case was weakened by the statements of one of his millmen who attempted to give expert testimony. This particular witness may have been a first-class weaver, but he was quite incompetent in his knowledge of synthetic fibers and yarns. When I suspected this from some of his comments, he was led into asserting in a positive manner that there were many kinds of Orlon. It was then not difficult to establish the fact that he was confusing an Orlon staple type with a filament Orlon type. The arbitrators were apparently convinced that this man was not qualified to discuss the yarn's characteristics and that my own testimony was more reliable; consequently they decided in favor of the converter.

An interesting case came up a short time ago when a mail-order firm complained of the reddening of black dyed nylon tricot slips after they had been packaged in paper envelopes. It was evident that areas undergoing the change in color coincided with the glued seams of the envelope. Analysis disclosed that the color change was due to an acid reaction originating from the glue when it was subjected to warm humid conditions. There was no disagreement between the experts as to the immediate cause of the fault, but it was my opponent's contention that the dyeing was improper. Fortunately, the arbitrators agreed with our stand that the colors were of first quality since laboratory tests confirmed the fact that they passed every normal requirement for the end-use product, specifically in fastness to laundering, light and gas fading.

It is unfortunate that the number of claims for faulty merchandise or dyeing and finishing appears to increase when the prices or market for particular fabrics or garments decline. When poor merchandise has been delivered, the defense will frequently be based on the assertion that the claim is being made only because of a drop in the market. In general, however, the arbitrators are well aware of marketing conditions and are not readily deceived.

If an expert values his reputation, he will, of course, refrain from appearing as a witness on behalf of an individual or company whom he believes has no valid ground for bringing action against the mill, dyer or converter whom he is opposing. Occasionally one is not given all the facts and may be misled into representing a client who is not entirely justified in his position. There have been instances in which I have conducted an investigation and reported that the person who retained my services was at fault or did not have a sound case. On those occasions, needless to say, I was not brought into court or arbitration.

Patent Litigation

It should be noted that the decision to defend or attack the validity of patents cannot be predetermined so readily. Except for the exercise of judgment in avoiding association with a person or company with a generally recognized unsavory reputation, no expert is qualified to judge from a preliminary briefing the validity of a patent or whether or not there has been infringement. There have been several cases in which I have been approached by patent attorneys representing opposing parties in litigation. The choice for whom to work in these cases was determined by the fact that one made a retainer offer before the other. While there may be unscrupulous attorneys or clients, I have never been asked to testify to any facts other than those which I ascertained to be truthful or in which I believed.

It has been my experience that participation as an expert witness in patent litigation generally calls for much more intensive study and preparation than ordinary disputes brought to court or arbitration. While the well-trained patent attorney lays the groundwork in searching the files for patents disclosing prior art, the expert must be adept at interpreting the technical details. In addition, a good expert can be most helpful if he has a broad knowledge of the particular field or subject involved along with a good memory of publications or technical papers which may have been presented in earlier years.

The importance of a chemist being well-grounded in analytical chemistry if he is to present reliable evidence, was brought out in several cases in arbitration and court. The polyester fiberfil content of pillows was an important factor in litigation involving misrepresentation in labeling. A study of the analytical procedure followed by the opposing expert disclosed to be faulty in that a certain chemical used in making the analysis had a slight solvent action on the polyester fiber, thus reducing the apparent content of this fiber to an amount below the acceptable limit. Establishment of this fact by my own tests, confirmed by those of another expert and supported by authoritative literature references, resulted in rejection of the first witness's findings. A similar situation arose in a dispute regarding fiber content in a knitted fabric made with an acrylic fiber face on a cotton back. The analyst had followed a prescribed procedure for determining the amount of acrylic fiber in the fabric but had neglected to ascertain the presence of a resin on the cotton backing which was not first removed. His calculation of the percentage of acrylic fiber in the fabric was erroneously low and the cutter's claim was rejected.

Laboratory Tests Sometimes Conflicting

It is not unusual for the arbitrators to be confronted with conflicting laboratory test results by experts representing the two opposing parties. In an unusual situation, I was called in by the arbitrators to make an investigation and submit a report of my findings and conclusions without being advised of the identity of the mill, finisher or converter. The arbitrators, confused by conflicting test reports, obtained the consent of both parties to engage my service and share the expense. It was understood that my conclusions might not be accepted as final, but my report was utilized to help the arbitrators reach a decision.

Unfortunately, even when one retains a competent attorney and an expert witness, there is no assurance that this constitutes a winning team. The fact that the arbitrators are knowledgeable and sincere in contributing freely of their time and efforts to reach a just decision does not always result in an award that seems to be consistent with the facts of the case. An example of how two different groups of arbitrators may reach a different decision was demonstrated in a dispute concerning the cause of shade blends in piece-dyed fabric woven with mercerized cotton yarns as the filling on a nylon warp. The initial arbitration took place between the converter and the weaver. The converter's expert presented evidence to support his contention that the cotton yarn had not been properly processed in mercerizing: a residue of pectin resulted in shade variations when the goods were subjected to normal scouring and dyeing. The defense was that, if the dyer had used caustic in preparing the goods, the cotton would have dyed evenly. Although the dyer was on hand to testify on behalf of the converter and established the fact that he had not used a caustic boil-off for any of the goods and only a few lots showed the defect, the gray goods mill was held not responsible. The arbitrators obviously relied on the testimony of the mill's expert who convinced them that the dyer was negligent. The converter then brought action against the dyer before a different group of arbitrators. At this time, with essentially the same facts brought to their attention, the arbitrators absolved the dyer of all responsibility and rejected the converter's claim.

Many a converter has expressed the belief that when trouble arises with finished goods he is always "in the middle". He frequently finds that the mill maintains that the dyer is to blame, while the dyer is equally as certain in insisting that the fault lies with the gray goods. When this situation does arise, it is only fair to state that it is an honest expression of opinion on both sides since no reputable mill or dyer will refuse to accept responsibility for his own faults. The particular case which I have cited, however, certainly provided no relief to the converter and one could only sympathize with his predicament. On the other hand, the converter's expert was able to derive some satisfaction from the feeling that at least one team of arbitrators thought he was right. When we stop to realize that there are many court decisions, rendered by able judges after prolonged arguments by competent attorneys, which are subsequently reversed in higher courts, it must be acknowledged that the arbitrators deserve a great deal of credit for their handling most textile disputes.

Compromise Settlements

It is often said that the decisions are generally a compromise, with both parties sharing the loss. However, in such instances it is usually because of the fact that there has been no clear-cut definition of liability proven against one side or the other and a sharing of the responsibility may be a fair decision. Typical of a compromise settlement agreed upon by the attorneys after a hearing which was not concluded even after five days of argument was one which involved about $80,000 of actual loss to the claimant. With a sum as large as this at stake and the facts not providing grounds for an easy decision, it is understandable why the arbitrators were anxious to have the case settled. A converter had sold dyed nylon tricot fabric to a manufacturer of automobile slip-covers. The nylon had been dyed with disperse colors and when the slipcovers were packaged, the white woven plastic material which constituted the major part of the assembly was stained by sublimation and transfer of the dye. The converter and his dyer argued that it was customary to dye nylon with this class of colors to get the most level results and attributed the fault to the plasticizing agent in the plastic.

The manufacturer maintained that the converter knew the fabric's end-use and that there was no specification given for the type of dyes to be used. Also, since the nylon fabric was for use in an area where it was relatively inconspicuous, it was asserted that a certain amount of streakiness would not have been objectionable. There were, of course, many more claims and counter-claims presented, including reference to shade-matching, selection of dyes and dyeing techniques.

To further complicate the situation, one of the principal witnesses had suffered a recent heart attack and the attorneys were reluctant to subject him to ruthless cross-examination which might bring on another attack during the hearing. The arbitrators, too, were quite concerned, since they felt that if they permitted rigorous questioning, they might be responsible for serious injury to the witness, whereas if they restricted the questioning, they could be criticized for being partial in not allowing full presentation of the facts. This could result in an appeal to the court to vacate the award and to order a new hearing.

The cases brought to court because of injuries sustained by the ignition and burning of items of wearing apparel are not as numerous in recent years as they were when the Flammable Fabrics Act was first passed. Nevertheless, there are still lawsuits instigated on the part of injured persons by lawyers who are not concerned or impressed with the fact that the fabrics involved, when available for a laboratory test, exhibit normal flammability characteristics.

If part of the burned garment is not available, the question arises as to whether or not the fabric in similar items of apparel is identical to the original in every respect. It is usually suggested that the garment which ignited behaved differently from the one which might have been tested to demonstrate its flammability characteristics. Under some circumstances it may not be possible to conduct a test strictly in accordance with the prescribed procedure.

For example, one lawsuit arose when a child was burned while wearing a shirt made with a fringe sewed across the chest portion of the garment. Because the dimensions of the fringe were such that they did not meet the minimum length required for testing, and because there were no true warp and filling yarns in the structure, it was necessary to modify the test procedure. This led to a disagreement between the experts as to what the proper method was for mounting the sample on the holding device, conducting the test and interpreting the results. Since this case was settled before all of the testimony was presented, we shall never know which expert made the most convincing witness.

After one has been engaged in litigation he realizes the importance of carefully kept records and letters exchanged when difficulties are encountered with merchandise. Unfortunately, when money is a factor there seems to be considerable disagreement or loss of memory in recollecting what took place when and what was said during discussions or telephone conversations. While I do not feel qualified to offer advice on the writing of contracts between mills and converters, converters and dyers or manufacturers and converters, I have participated in many arbitrations where the incorporation of more specific details regarding types of finish or dyestuffs, performance requirements and a definite statement regarding end-use requirements for fabrics being bought or sold would have made life simpler for all.

Witness Must Be Qualified

In summary, the expert witness, when properly qualified and well-trained, can be of considerable assistance in arbitration and court proceedings. His guidance can help the litigant to decide whether or not he has a justifiable complaint, while his knowledge of the technical aspects can relieve the attorney of a considerable burden and free him to devote his efforts to presenting the case in a most efficient and effective manner. At the same time, he can render a great service to the arbitrators or judge and jury in providing in layman's language a clear interpretation of the technical details honestly and objectively. If at some time the reader has occasion to appear as an expert witness the formula for avoiding discomfort, embarrassment and nausea is very simple—be truthful and avoid talking about a subject with which you are not thoroughly familiar. I hope that I have followed my own recipe and that I have been successful in presenting a good case for the expert witness. ■

Belding Heminway

(Continued from page 46)

wheels in many uses where such gears are required to function without lubrication.

Belding's chief executive officer, Harold A. Johnston, is a man with unparalleled experience in the manufacture of sewing threads. A Dartmouth graduate, he joined Heminway Silk Co. in 1921 in Watertown, Conn. In 1922, at the age of 27, he was made superintendent of the old Heminway Silk Co. and was responsible for the enormous task of consolidating Belding and Corticelli plants with the Heminway operations in Putnam, Conn. The consolidation resulted in the establishment of Belding Heminway as a modernized thread producer with its plants concentrated in Putnam. In 1937, he was made a vice president. In the years that intervened between then and his accession to the post of Chairman of the Board he supervised the expanding manufacturing operations of Belding marked by the purchase of the Summit Thread Co. in 1939 and after the war, the erection of a new throwing plant in Morristown, Tenn., a new weave shed at Bedford, Va., the building of the thread plant at Hendersonville, N. C. and in 1955 the acquisition of the Grosvenor Mills in Grosvenordale, Conn. In 1957 and 1958 the General Thread Mills and W. C. Thairlwall & Co., Inc., independent thread producers, were acquired.

More than most textile manufacturing companies, diversity characterizes the Belding Heminway effort to build its sales high and keep profits coming in. Incidentally, the company, long a publicly held one with its stock listed on the New York Stock Exchange, has paid quarterly dividends for 28 consecutive years. To clarify the Belding Heminway diversity, the following description of the activities of the company's divisions and wholly owned subsidiaries may be helpful:

THREAD DIVISION

This division manufactures a wide diversity of sewing threads for home sewers, for apparel manufacturers and for a variegated range of industrial uses, with plants at Putnam, Conn., Grosvenordale, Conn., Hendersonville, N. C. and Morristown, Tenn.

FABRICS DIVISION

This division, operating as a weaver with a plant at Bedford, Va., and as a converter, sells a wide range of apparel fabrics to garment manufacturers under the Belding Corticelli label. Fine silks and synthetic fabrics, including one of the largest and most popular print lines in the market, make up its line.

RETAIL PRODUCTS DIVISION

This division supplies retail stores throughout the country with Belding Corticelli fabrics, sewing thread and sewing kits.

BELDING CORTICELLI INDUSTRIES, INC.

This division located at Grosvenordale, Conn. produces BCI Nylon for plastics uses as described above in greater detail.

M. HAUSMAN & SONS, INC.

Now operated as a subsidiary of Belding Heminway, Hausman continues its long-established business as manufacturers and distributors of fabrics for the drapery, luggage, handbag and umbrella trades. Its plant is at Emporia, Va.

BELDING CORTICELLI FIBER GLASS FABRICS, INC.

Based on the glass weaving and finishing facilities acquired in 1960 through the purchase of Carl Joseph, Inc., this subsidiary at Kulpmont, Pa., produces both industrial and decorative glass fabrics.

LILY MILLS CO.

Acquired in 1960, this subsidiary located at Shelby, N. C. manufactures and distributes sewing threads for home sewers as well as art needle products including crocheting, knitting and embroidery, hand weaving yarns and equipment.

Polynosic Trade Mark

Hartford Fibres Co., division of Bigelow-Sanford, Inc., has been granted official registration for the trade mark "Polynosic," a descriptive term for Hartford's new Zantrel fiber. The certificate of trade mark registration, No. 714851, was issued by the U.S. Patent Office on May 9, 1961.

Polynosic is coined from "poly", meaning many, and "nosi," meaning fibrils. Though basically a cellulosic fiber and therefore generically a type of rayon, Hartford reports Zantrel has unusual characteristics in molecular makeup and performance unlike conventional rayon. Use of the description "Zantrel Polynosic rayon" is therefore intended to distinguish it from regular rayon.

Cotton Fabric Imports

The U.S. should act immediately to encourage rather than further restrict the imports of cotton cloth, according to Samuel Ishikawa, secretary-treasurer, Association on Japanese Textile Imports, Inc., New York City. U.S. cotton fabric imports in February of this year totaled 20.6 million square yards, less than half than was imported in February, 1960. For the five months ending February, 1961, Ishikawa stated, imports were down 35.6% from the comparable year-ago period. On the other hand, he pointed out, U.S. cotton fabric exports were down only 9.1%, with U.S. exports exceeding its imports by 43.8%.

Metallic Yarn Popularity

Acme Backing Corp. has doubled the capacity for the second time of its plant in Paladru in southeast France, for production of polyester metallic yarns. Ralph Freydberg, chairman of Acme, recently returned from a European trip, reported that the capacity was increased because of the growing popularity of such yarns in women's wear and upholstery in several European countries.

Use of the decorative yarns, he said, only became fashionable about 10 months ago in Europe, or about five years after their popularity peak in America. In another two years, Freydberg believes, their importance on the Continent will trigger another growth in their use in America.

TEXTILE — NEWS BRIEFS

Whitin Reelects Bolton

J. Hugh Bolton was reelected president and Norman F. Garrett renamed executive vice president of Whitin Machine Works at the recent annual meeting. Elected as vice presidents were: John H. Bolton, Jr., R. I. Dalton, Sr., R. I. Dalton, Jr., B. C. Grieb, and Harry Moss.

Bolton said that Whitin's 1960 consolidated net profit, after taxes, amounted to $4,049,867 or $5.63 a share. Sales last year came to $71,565,332, a 44% rise over 1959.

New Foam Component

Allied Chemical will become the first American company, it reports, to supply both principal components of urethane plastics when commercial production of polyethers begins in July at the Solvay Process Division's Baton Rouge, La., plant. The polyether plant's initial capacity will be 20 million pounds annually.

The National Aniline Division of Allied Chemical, which has been manufacturing a line of diisocyanates since 1953, will also market the polyethers to the urethane industry. Polyethers are the largest single components of urethane foam, and are the controlling factor in determining foam quality and properties.

New Film for Consumers

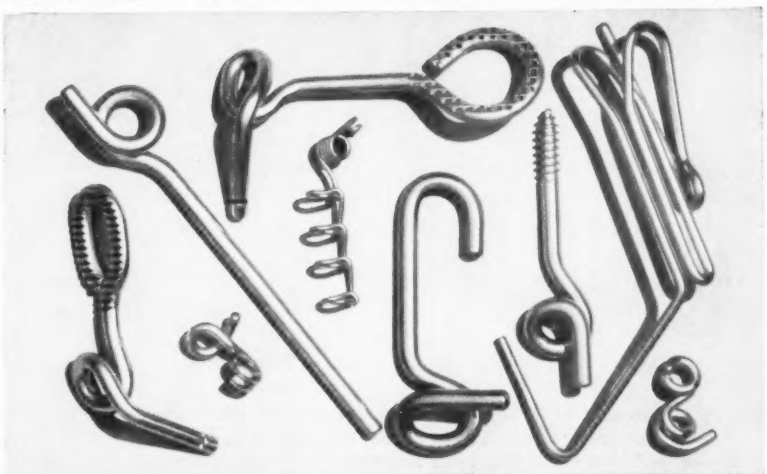
"Consumers Want to Know," a 30-minute, 16mm sound film about Consumers Union and "Consumer Reports" is now available for rental or purchase by various groups or individuals. Prints also are available, as a public service without charge, for television presentation. Request for the film should be sent to Consumers Union Film Library, 267 W. 25th St., New York 1, N. Y. The new film presents a factual day-by-day account of how CU functions, how a test project is carried through from start to finish, how "Consumer Reports" are produced, and how CU speaks for consumers at Washington hearings.

Protective Cloths Described

"Protective Cover Fabrics," a new 16-page booklet intended as a general guide to the principal uses of various protective materials, has been published by Wellington Sears Co. The two-color brochure can serve as a convenient reference source, a selling and sales training aid, and a summary of the broad range of protective fabrics available from Wellington Sears. *For copies write the editors.*

WHEN IT COMES TO PROTECTION...

HARD CHROMIUM PLATING



Walhard

The Leading Name In Textile **Hard Chromium Plating.**

Chromium plating, as does everything else, comes in various qualities, so you owe it to yourself to buy the best protection possible. Our customers expect the **best Hard Chromium Plating** when they buy **Walhard.**

During 26 years of successful experience, we have proven that fast, efficient service combined with **Hard Chromium Plating** "know how" mean "dollars in their pockets."

Be sure you are getting quality **Hard Chromium Plating** — both satin and polished finish — It costs no more and lasts longer.

WALTON and LONSBURY

79 NORTH AVENUE **ATTLEBORO, MASSACHUSETTS**

Sleek, Colorful Seashapes

take on added Allure with yarns package-dyed by GLOBE

Swimwear that's new—under the sun or in the swim—will be both style-right and color-bright when knit or woven from yarns (natural, synthetic or blends) package-dyed by Globe.

Give your creations the plus factor of vivid color appeal—imparted by Globe's superior dyeing.

Globe does package dyeing on tubes, skein and warp dyeing, warp bleaching and sizing.

Yarns processed include cotton, worsted, linen, blend and novelty yarns, and all synthetics including Arnel®, Creslan®, Orlon® (Turbo, Hi-bulk and Sayelle) and Zefran®.

Globe Dye Works Co

Since 1865

4500 WORTH STREET
PHILADELPHIA 24, PA.
JEfferson 5-3301

Carpeting for Schools?

James Lees and Sons Co. reported unexpected interest in carpets as a flooring for school areas at the recent convention of the American Association of School Administrators in Philadelphia, Pa. Lees, which had the only floor covering exhibit at the convention, displayed carpets appropriate for school use and distributed the American Carpet Institute's pamphlets on "Cutting the Costs" to school officials.

Textile Machine Works Expands

Textile Machine Works has acquired the capital stock of J. L. Ferguson Co. Textile Machine Works has its main office and plant in Reading, Pa., with Ferguson's headquarters located at Joliet, Ill.

Textile Machine Works makes hosiery machines and other textile equipment. Ferguson manufactures case loaders and sealers, and other packaging machinery.

Creslan Training Film

"The Six Senses of Selling," a 15-minute training film describing Creslan acrylic fiber, has been released by the Fibers Division of American Cyanamid Co. Set in a busy retail store, the film seeks to aid retailers in answering common questions about Creslan. Prints can be obtained from American Cyanamid's Fibers Division at 111 W. 40th St., New York 18, N. Y.

To Use 'Curonized'

Reeves Brothers, Inc., has appointed The Kenyon Piece Dye Works, Inc., a licensed laminator of Reeves' Curonized Process. Kenyon Piece Dye Works is a commission dyer and finisher specializing in synthetics and blends.

To Hike Tire Cord Output

United States Rubber Co. will spend $1,500,000 this year on installation of new nylon tire fabric production facilities at its Winnsboro, S. C., plant. Expansion of facilities is scheduled for completion this year. Three years ago the company completed a $1,000,000 expansion of its nylon tire fabric production facilities at its Scottsville, Va., plant.

Zantrel Promotion

The Hartford Fibres Division of Bigelow-Sanford, Inc., has appointed Chirurg & Cairns, Inc. to handle the advertising and publicity for its new Zantrel polynosic rayon fiber. Zantrel is said to be similar to mercerized combed cotton in its physical and processing characteristics.

(Continued on page 57)

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarn, staple and tow as reported by the producers in June 1961. All prices are given to change without notice.

CELLULOSIC YARNS

ACETATE

American Viscose Corp.

Current Prices Effective March 22, 1960

Bright and Dull

Denier & Filaments	Intermediate Twist** Twister Cones	Twister T-Tubes	Warps	Spinning Twist Cones & C-Tubes	Warps
40/11	$	$	$	$	$1.14
45/14					1.03
55/14-20	.99	.97	1.00	.93	.87*
75/18					.90
75/20	.95	.93	.96	.89	.90
100/28	.91	.89	.92	.85	.86
120/32	.82	.80	.83	.76	.77
150/36					.70
150/41	.74	.73	.75	.69	.70
200/54	.70	.69	.71	.66	.67
240/80	....	....	....	.65	.66
300/80	.66	.65	.67	.62	.63

* Tricot Spools Only.
** Standard Twist 2¢ Additional.
Terms: Net 30 Days.

Celanese Fibers Company

Current Prices Effective March 22, 1960

Acetate Filament Yarn Prices
Bright and Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	4-Pound Cheeses	Spinning Twist Cones	Beams	0 Twist Tubes
45/13	$1.12	$1.13	$	$	$1.03*	$ ....
55/15	.99	1.00	....	....	.87*	.82
75/20	.95	.96	....	.89	.90	.86
75/50	.97	.98	....	....	.92	....
100/26-40	.91	.92	....	.85	.86	....
120/40	.82	.83	....	.76	.77	....
150/40	.74	.75	.74	.69	.70	....
200/52	.70	.71	....	.66	.67	....
240/80	.68	....	....	.64	....	....
300/80	.66	.67	....	.62	.63	....
450/120	.66	.67	....	.62	.63	....
600/160	.65	.66	....	....	....	....
900/80-240	.63	.64	....	....	....	....

* Tricot beams only. This item with Permachem—$.05 additional.
3T/10 electrical finish available at no premium.

3 to 5 turns on Cones or Beams	$.02 Additional
Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn
150 Denier 12-TM Tubes	$.73
3 Pound Cheeses	$.01 Less than 4-lb. Cheeses
2-BU and 4-BU Tubes	Same price as 4 & 6-lb. cones
Premium for Serving Tubes	$.05
Part Cone Premiums: 2-lbs.	$.05
1-lb.	$.10
Under 1-lb.	$.20

Celaperm Filament Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.37	$1.38	$1.31	$1.32
75/20	1.34	1.35	1.28	1.29
100/26	1.28	1.29	1.22	1.23
120/40	1.19	1.20	1.13	1.14
*150/40	1.11	1.12	1.06	1.07
200/104	1.05	1.06	1.01	1.02
300/80	1.01	1.02	.97	.98
450/120	.99	1.00	.95	.96
600/160	.97	.98	....	....
900/240	.94	....	....	....

* 150/2Z/40 available in all colors. Contact our District Sales Representative for current availability of colors in other denier.

Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn

Celaperm Black Yarn Prices

Effective March 22, 1960

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.17	$1.18	$1.11	$1.12
75/20	1.14	1.15	1.08	1.09
100/26	1.08	1.09	1.02	1.03
120/40	.99	1.00	.93	.94
150/40	.91	.92	.86	.87
200/52	.85	.86	.81	.82
300/80	.81	.82	.77	.78
450/120	.79	.80	.75	.76
600/160	.77	.78	....	....
900/80	.74	....	....	....

3 to 5 turns on Cones or Beams	$.02 Additional
Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 Turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Acele"* Acetate
Bright & Dull

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Bms.
45-13	$.94	$1.02						
55-18	.82	.86					$.99	$1.00
55-24	.82	.86					.99	1.00
75-24	.86	.89		$.90		$.93	.95	.96
75-50				.92		.95	.97	.98
100-32	.82	.85		.86		.89	.91	.92
120-50	.73	.76		.77		.81	.82	.83
150-40	.66	.60	$.69	.70			.74	.75
200-60	.65		.66	.67			.70	.71
240-80			.65				.69	
300-80	.60	.62	.62	.63	$.66		.66	
450-120	.61		.62	.63	.66		.66	
600-160					.65		.65	
900-44					.63***			
900-240	.61**						.63	
1800-88					.61***			.62***
2700-132					.61***			
3000-210					.61			

1800 Type 20 only.
(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.
** Bright only 2" Tubes.
*** Type 20 only.

Color-Sealed

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist Cones	Beams
75-24	$1.18	$1.28		$1.29	$1.34	$1.35
100-32	1.14			1.23	1.28	1.29
150-40	1.03	1.06	1.06	1.07	1.11	1.12
300-80		.97			1.01	1.02

Black

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 4 & 6 Lb. Tw. Tbs.	Cones	Beams
55-18	$1.045					$1.17	$1.18
75-24	.98	$1.08		$1.09		1.14	1.15
100-32	.94			1.03	$1.06	1.08	1.09
150-40	.83	.86	$.86	.87	.91	.91	.92
200-60					.85	.85	.86
300-80	.75	.77	.77	.78	.81*	.81	.82
900-44					.74*	.74	

* 2 & 4 lb. ⅝" tbs. is same price as 4 & 6 Tw. Tbs.

Specialty Yarns
Cycloset for Tricot

	Tubes	Beams
40-13 Natural	$1.07	$1.14
55-18/24 Natural	.83	.87
75-24 Natural	.87	.90
100-32 Natural	.83	.86
40-13 Black	1.22	1.29
55-18 Black	1.08	1.12

Terms: Net 30 days. Subject to changes without notice.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska
* Dupont's Trademark for its acetate yarn.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.
Current

"Estron"* Yarn, Bright or Dull — White

Denier & Filament	Regular Twist Cones	Beams	Intermediate Twist Cones	Beams	Low Twist Cones	Beams	Zero Twist Tubes	Tricot Beams Spun Twist	Zero Twist
55/13	$1.01	$1.02	$0.99	$1.00	$0.93	$0.94	$0.82	$0.87	$0.86
75/19	.97	.98	.95	.96	.89	.90	....	.90	....
75/49	.99	1.00	.97	.98	....	....	....	....	....
100/25	.93	.94	.91	.92	.85	.86	....	....	....
120/30	.84	.85	.82	.83	.76	.77	....	....	....
150/38	.76	.77	.74	.75	.69	.70	.66	....	....
200/50	.72	.73	.70	.71	.66	.67	....	....	....
300/75	.68	.69	.66	.67	.62	.63	.60	....	....
450/114	.68	.69	.66	.67	.62	.63	....	....	....
600/156	.67	.68	.65	.66	.62	.63	....	....	....
900/230	.65	.66	.63	.64	....	....	.61	....	....
Heavier	....	....	....	....	....	....	.56	....	....

Current

"Chromspun"*—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams
55/13	$1.34	$1.35	$1.32	$1.33	$1.26	$1.27
75/19	1.31	1.32	1.29	1.20	1.23	1.24
100/25	1.25	1.26	1.23	1.24	1.17	1.18
150/38	....	....	1.06	1.07	1.01	1.02
300/75	....	....	.96	.97	.92	.93
450/114	....	....	.94	.95	.90	.91
900/230	....	....	.89	.90	....	....

Current Prices

"Chromspun"*—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.
Prices on special items quoted on request.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in continental United States except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.
* "Estron" is a trade-mark of the Eastman Kodak Company.
* Chromspun is a trade-mark of the Eastman Kodak Company.

RAYON

American Bemberg

Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Twist Skeins	Twisted Skeins & Cones	8½ Turns	High Twist Skeins & Cones 12 Turns	15 Turns	18 Turns
40/30	$1.49	$1.95	....	....	....	$2.08
50/36	1.29	1.55	....	....	....	1.85
65/45	1.22	1.38	....	$1.61	....	1.66
75/60**	1.11	1.25	....	1.48	$1.53	1.56
100/74**	1.02	1.15	....	1.40	1.45	1.51
125/60	1.01	1.12	$1.16	1.37	....	....
150/120	.99	1.08	1.18	1.33	....	....
300/225	....	1.01	....	....	1.14	....
900/744	....	.91	....	....	....	....
1800/744	....	.91	....	....	....	....

*Includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.
** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Twist Tubes	No Twist Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Cones	15 Turn Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.05	1.05	....	....	....	....	....
65/45	1.13	....	....	....	....	$1.50	....
75/45*	1.04	....	$1.15	$1.15	$1.38	1.38	$1.46
100/60*	.96	....	1.10	1.10	1.30	1.30	1.38
125/60	.91	....	1.06	1.06	....	....	....
150/90*	.83	....	.87	.87	1.21	1.21	1.30
150/120	.87	....	....	.99	....	....	....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" Spool Spun Yarn

Den/Fil	No Twist Cones	5 Turn Cones	5 Turn Beams	12 Turn Cones	15 Turn Cones
50/36	$1.60	$1.85	$1.85	....	....
75/45	1.48	1.58	1.58	1.78	1.88
100/60	1.38	1.48	1.48	1.68	1.78
150/90	1.21	1.28	1.28	1.63	1.73
300/120	1.21	1.28	....	....	....

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Turn Natural Cones	2½ Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	....	....	$1.50	$1.40
1519**	155/90	....	....	1.50	1.40
2008***	200/120	....	....	1.11	1.01
3002	315/180	$1.15	$1.05	....	....
4011	410/224	1.15	1.05	....	....
6001	600/360	1.13	1.03	....	....
8001	860/450	1.13	1.03	....	....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.
** Code 1519 can be run in warp or filling.
*** Available in 10 turns at 5¢ extra per pound.

CUPIONI Type B

Code	Den/Fil	2½ Turn Cones
9650	70/45	$1.69
9660	100/60	1.53
1545	150/90	1.35
9730	285/135	1.15
9792	450/225	1.15
9819	600/372	1.12
9837	940/372	1.02

"Spun Dyed Cupracolor is spun 150, 285, and 940 deniers at 35¢ per pound extra. Cupracolor Black Comes in all deniers."

STRATA SLUB

Code	Den/Fil	Twisted Cones	Price
9747	275/225	3½ Turns	$1.25
9798	450/372	2½ Turns	1.15
9823	600/372	2½ Turns	1.10
9847	960/372	2½ Turns	1.02
9885	1290/372	1½ Turns	1.00
9924	2680/744	1½ Turns	1.00

"Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra."

FLAIKONA

Code	Den/Fil	Twisted Cones	Price
9644	70/45	2½ Turn Cones	$1.69
9699	150/148	2½ Turns	1.35
9769	300/224	2½ Turns	1.25
9782	450/270	2½ Turns	1.05
9809	600/360	2½ Turns	1.05
9840	900/450	2½ Turns	1.00
9924	2000/744	2½ Turns	.95

TUSSON

Code	Den/Fil	2½ turn Cones	3½ turn Cones
9668	100/60	....	$1.58
9678	150/90	$1.35	
9745	285/135	1.20	
9783	450/225	.85	
9821	600/372	.80	
9828	940/372	.75	

Spun Dyed Cupracolors 30¢ extra per lb.
Available in 450 denier only.
Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice.

American Enka Corp.

Current Prices
Effective February 29, 1960
Standard Quality Yarns

NATURAL

Den./Fil.	Luster	Turns	Weaving Cones	Weaving Beams	Skeins Long	Skeins Short	Cakes	Knitting Cones
50/18	E	5 S	....	....	....	....	....	1.63
50/20	B	4 S&Z	....	....	....	....	1.52	1.64
75/10	B	3 S&Z	....	....	....	....	1.02	....
75/18	E	4 S	....	....	....	....	....	1.14
75/30	B	2.5,4S&Z	1.14	1.14	1.32	1.41	1.02	1.14
75/30	B	8 S	1.24	....	1.49	1.59	1.12	1.24
75/45	P,E	2.5,4,5S&Z	1.14	1.14	1.32	1.41	1.02	1.14
75/60	B,P	3,4 Z	1.16	....	....	....	1.04	....
100/14	B	3 S&Z	....	....	1.15	1.23	.90	....
100/40	B,E	12 S&Z	....	....	....	....	....	1.29
100/40	B,P,E	4,5 S&Z	.98	....	....	....	.90	.98
100/40	B	6 S	1.17	....	1.34	1.44	1.09	....
100/40	B,P	2.5,4S&Z	.98	.98	1.15	1.23	.90	....
100/60	B	4 S&Z	....	....	....	....	.90	....
100/60	E	2.5 S	1.00	1.00	....	....	.92	....
125/40	E	3 Z	....	....	....	....	.87	.90
125/50	B,P	3 S	.96	.96	....	....	....	....
150/40	B,E	0	.745	....	....	....	....	....
150/40	B,P,E	2.1,3S&Z	.82	.82	.96	1.03	.78	.82
150/40	B,E	5 S&Z	.90	.90	1.15	1.25	.86	....
150/40	B,E	8 S&Z	.95	.95	1.20	1.30	.91	....
150/60	B	3.0 S	.82	.82	....	....	....	....
150/90	E	2.1 S&Z	.83	.83	....	....	.79	....
200/40	B	2.1 S	.81	.81	.94	1.01	.77	....
200/40	P	3 Z	....	....	.94	1.01	.77	.81
250/60	P,E	2.4 Z	....	....	.93	1.00	.77	.80
300/30	E	3 S	.81	.85	....	....	....	....
300/40	B	3.2 Z	.73	.73	....	....	....	....
300/50	B,E	3 S	.73	.76	....	....	....	....
300/60,120	B,P,E	2.1 S&Z	.73	.73	.82	.89	.71	.73
300/60	B	3.5 S	.73	.73	.82	.89	.71	....
300/60	B	6 S	.86	.86	....	1.00	.84	....
300/120H.T.	B	2.5 S	.75	.75	....	....	.73	....
450/60	B	3 S	.69	.71	....	....	.67	....
450/80	B,E	3 S	.69	.71	.78	.85	.67	....
600/80	B,E	3 S	.73	.75	....	....	....	....
600/120	B,E	3 S	.69	.71	.78	.85	.67	....
900/120	B	3.4 S	.69	.71	.78	.85	.67	....
900/120H.T.	B	3.4 S	.71	.71	....	....	.69	....

B = Briglo E = Englo (Dull)
P = Periglo (Semi-Dull) H.T. = High Tenacity

Jetspun® (Colored Yarns)

Den./Fil.	Tenacity	Turns	Weaving Cones	Beams	Colors
100/40	Regular	2.5S	$1.35	$1.35	All
150/40	Regular	2.1S	1.17	1.17	All
200/40	Regular	8.0S	1.28	1.28	All
300/120	Regular	2.1S	1.09	1.09	All
450/80	Regular	3.0S	1.05	1.05	All
600/80	Regular	3.4S	1.04	1.04	All
300/40	High	3.4S	1.11	1.11	All
900/120	High	3.4S	1.06	1.06	All

® Registered Trade Mark for American Enka Solution-dyed Rayon Yarn.

Skyloft® (Lofted Rayon Filament Yarns) Natural and Jetspun®

Denier	Denier per Filament	Twist	Cones or Tubes Natural	Black	Other Colors
5300	15	3.0S&Z	.65	.75	.82

Registered Trademark for American Enka Texturized yarn.

American Viscose Corp.

Effective October 13, 1959

Graded Yarns

Denier	Filament	Type	Short Skeins	Long Skeins	Cones Tubes	Beams Spools	Cakes
			Regular Turns				
75	10-30	Bright	$1.41	$1.32	$1.14	$1.14	$1.02
75	30	Dull	....	....	1.14	1.14	1.02
100	14-40	Bright	1.23	1.15	.98	.98	.90

Court Upholds Scholler Trust

A Pennsylvania charitable trust fund, known as The Scholler Foundation, set up by the late Frederick C. Scholler, founder of Scholler Brothers, Inc., Philadelphia, Pa., one of the nation's largest makers of textile chemicals, was declared legal and valid by unanimous decision of the Pennsylvania Supreme Court, it was learned recently. The decision upheld the decree of the Orphan's Court of Philadelphia County from which decision an appeal had been taken. Scholler, who died in 1957, was a resident of Ventnor, N. J.

In affirming the decision of the Orphan's Court, the Supreme Court took particular notice of the terms and intent of the trust, declaring "we are convinced that the court below was correct in its ruling that the settlor created a valid charitable trust. The use of the terms 'charitable entity', 'charitable trust', 'benefit of mankind' and 'betterment of mankind' are indeed strong evidence of his intent. . . ."

Objections to terms of the will were filed by cousins of the decedent who had charged the foundation to be a subterfuge and an illegal device. The ruling of Judge Mark E. Lefever, of the Orphan's Court, which the litigants sought to reverse, stated that "many men of success and wealth devote much of their time and affection to their families and their welfare. The settlor was unmarried and childless. The Scholler Foundation was the object of his attention and devotion. It was his substitute for family".

The Foundation was named by its founder as the recipient of the income from the companies of the decedent: Scholler Brothers, Inc., Scholler Brothers, Ltd., and Trisco Products, Inc.

Grace to Sell Olefins

W. R. Grace & Co. and Chemore Corp., general representative in the United States for Montecatini, Milan, Italy, have concluded an agreement to cooperate in the marketing of polypropylene. Grace's Polymer Chemicals Division will market the polypropylene produced in the new plant being built and to be operated at Neal, W. Va., by Novamont Corp., Montecatini's wholly-owned subsidiary. The polypropylene will be marketed by both Grace and Chemore under Montecatini's "Moplen" trademark. The Novamont plant will have an initial capacity of 25 million pounds and will go on stream in the 1961 third quarter.

The Polymer Chemicals Division and Chemore are reported well advanced in the development of applications for polypropylene in the fields of automotive components, packing films, monofilaments and appliance parts.

Jack W. Rettew

Rettew Joins Fletcher

Jack W. Rettew has been appointed sales manager of the southern divisions of Fletcher Industries, according to an announcement by Edward T. Taws, president. Rettew will have headquarters at the Fletcher Southern Pines Division, Southern Pines, N. C., and will act as liaison between this plant and the Fletcher operation in Statesville, N. C. Prior to joining Fletcher, he was purchasing agent for Amerotron Co. in Aberdeen, N. C.

RICHARD WARSOFF

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America's most modern streamlined sample card and swatch service

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...whether it runs into the
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100	60	Dull	....	....	1.00	1.00	.92
150	24-40	Bright	1.03	.96	.82	.82	.78
150	40	Semi-Dull	1.03	.96	.82	.82	.78
150	40	Dull	....	....	.82	.82	.78
150	90	Dull	....	....	.83	....	.79
200	10-44	Bright	1.01	.94	.81	.81	.77
250	60	Semi-Dull & Dull	1.00	.93	.80	.80	.77
300	15	Bright	....	.85	.78	.78	....
300	30	Dull Flat Filament	....	....	....	.85	....
300	44	Bright & Dull	.89	.82	.73	.73	.71
300	234	Dull	....	....	.83	....	.81
450	60-100	Bright	....	.78	.69	.71	.67
600	100	Bright & Dull	....	.78	.69	.71	.67
900	50-100-150	Bright	....	.78	.69	.71	.67
1200	75	Bright	....	.78	.69	.71	....
2700	150	Bright	....	.78	.69	.71	....

Extra Turns Per Inch

150	40	Bright	6-Turns	$1.25	$1.15	$ .90	$ .90	$ .88
200	44	Bright	6-Turns	....	1.05	.96	.96	....
300	15	Bright	5-Turns	....	....	.86	.86	....
300	44	Bright	4.3-Turns	....	....	.81	....	.79
300	44	Bright	6-Turns	.97	.90	.86	.86	.84
300	120	Rayflex	6-Turns	....	....	.93	.93	....
600	30	Bright	5-Turns	....	.86	.82	.82	.80

Rayflex Yarns

150	40-60	Rayflex	$	$	$ .85	$ .85	$ .81
200	75	Rayflex	....	....	.84	.84	.80
300	60-120	Rayflex	....	....	.75	.75	.73
450	120	Rayflex	....	....	.71	.71	.69
600	234	Rayflex	....	....	.71	.71	.69
900	350	Rayflex	....	.80	.71	.71	.69

Spun Dyed Yarns

Denier	Type	Cones/Tubes Beams/Spools
75	Regular Strength	$1.71
100	Regular Strength	1.35
150	Regular Strength	1.17
200	Regular Strength	1.14
300	Regular Strength	1.09
450	Regular Strength	1.05
600	Regular Strength	1.05
900	Regular Strength	1.05
300	High Strength	1.11
450	High Strength	1.06
900	High Strength	1.06

Avicron Yarns

Avicron Yarns

Denier	Filament		Cones/Tubes Beams/Spools
1800	100-200	Singles & 2 Ply	$.61
2700	150-300-980	Singles & 2 Ply	.58
2700	980	Singles 5 TPI	.61

Viscose Filament Yarns

The following material deposit charges are required:

Metal Section Beams	$170.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
32" flange	150.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
32" flange	75.00 each
Wooden Tricot Spool Crates	20.00 each
Cloth Cake Covers	.05 each

Same to be credited upon return in good condition—freight collect.

Celanese Fibers Company

Effective October 12, 1960

Viscose Rayon Filament Yarn Prices—Bright and Dull

Denier/Fil/Twist		Beams	Cones	Cakes
75/30/2Z		1.11		
75/30/3		1.11	1.10	.98
100/40/2Z		.97		
100/40/3		.97	.96	.88
100/40/5			1.02	.95
100/60/2Z	NS	.97	.96	
100/60/3			.98	.90
125/40/2Z		.95		
125/40/3		.95	.94	.87
150/40/0	NS		.74½	
150/40/2Z		.81		
150/40/3		.81	.79½	.76
150/40/5			.90	.86
150/40/8			.95	.91
150/40/10			.98	.94
150/90/0	NS		.77½	
250/60/0	NS		.74	
250/60/3			.80	.77
300/50/0	NS		.70	
300/50/2Z		.72		
300/50/3		.72	.70½	.69
450/60/0	NS	.68	.67	
450/60/3		.70	.69	

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U. S. A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Effective May 11, 1961

Bright and Dull

Den.	Fil.	Turns/ Inch Up to		Beams	Cones (A) Tubes	Cakes
40	20	3	Textile "Cordura"*		$1.97	$1.92
50	20	3	Textile "Cordura"		1.72	1.67
50	35	3	Textile "Cordura"		1.77	
75	30	3		$1.14	1.14	1.02
100	40	3	Bright	.98	.98	.90
100	60	3	Dull		1.00	.92
125	50	3		.96	.96	.87
150	40	3		.82	.82	.78
150	60	3	Bright	.82	.82	.78
150	60	3	Textile "Cordura"		.875	.845
150	90	3	Dull		.83	
150	100	3	Dull		.83	
300	50	2.5		.73	.73	.71
300	120	3	Textile "Cordura"	.74	.74	.72
450	72	3		.71	.69	.67
600	96	3	Bright	.71	.69	.67
600	240	3	Textile "Cordura"	.72	.70	
900	50	3	Bright	.71	.69	.67
900	144	3	Bright	.71	.69	.67
2700	150	3	Bright	.71	.69	

Thick and Thin

150	90	3	#7 Bright	1.08	
200	80	3	#7 Bright	1.08	
450	100	3	#7 Bright	.92	
1100	240	3	#60 Bright	1.03	
2200	480	3	#60 Bright	.98	

Plush

300	30	3	Dull	.85		

(A) 2¢/lb. additional for cones less than 3#.

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are Du Pont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Co.,—Div. of Midland-Ross

Effective June 15, 1961

Continuous Process Textile Yarns

Denier	Filament	Turns per In.	Type	Beams	2.8# Cones	4.4# Cones and Tubes
150	40	2.5"S"	Dull	.82	.82	
150	40	2.5"S"	Bright	.82	.82	
200	20	2.5"S"	Bright	.81	.81	
300	44	2.5"S"	Bright	.73	.73	
450	60	2.0"S"	Bright	.69		.69
600	90	1.5"S"	Bright	.69		.69
900	50	2.0"S"	Bright	.69		.69
900	150	2.0"S"	Bright	.69		.69
1100	480	2.0"Z"	Bright extra strong	.66		.66

Lustre #4 is semi-dull.

Prices are subject to change without notice.

Strawn Monofilament

Denier	Filament	Turns per In.	Type	4.4# Cones	Spools and Tubes
450	1	0	Bright and Dull	1.00	1.05
1250	1	0	Bright and Dull	1.00	1.05

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points in continental United States except Alaska.

Prices are subject to change without notice.

North American Rayon Corp.

Current Prices

Denier/Filament Normal Strength Yarns — NARCO	Twist	Knitting* Cones	No Twist Knitting Cones	Weaving Cones, Velvet Cones, Beams, Tubes**	Untreated Cakes
75/30	3.5			1.14	1.02
75/30	7			1.27	
75/30	12			1.35	
75/30	15			1.37	
75/30	20			1.40	
100/40/60	3.5			.98	.90
100/40	12			1.22	
125/25/60	3			.96	.87
125/52	10			1.13	
150/42	0		.74½		
150/42/60	3	.80½		.82	.78
300/75	0		.71		
300/75	3	.73		.73	.71
900/46	2.5	.69		.69	
1800/92	2.5	.69		.69	

* Oiled Cones $.01 per pound extra for Graded Yarns only.

** 1 lb. Tubes $.02 per pound extra for Graded Yarns only.

"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

TRIACETATE

Celanese Fibers Company

Current Prices

Arnel Yarn Prices
Bright & Dull

Effective August 19, 1958

Denier and Filaments	Cones	Beams	Thick and Thin Cones
55/LTDZ/15	$	$1.20	$ ....
55/2Z/15	1.32	1.33	....
75/LTDZ/20	....	1.16	....
75/2Z/20	1.21	1.22	....
100/2Z/26	1.14	1.15	....
150/2Z/40	.95	.96	....
200/2Z/40	....	....	....
200/2Z/52	.92	.93	1.25
300/2Z/80	.87	.88	1.23
450/2Z/120	.86	.87	....
600/2Z/160	.85	.86	1.21

3 to 5 Turns on Cones or Beams—$.02 Additional
Premium for Black Arnel—$.25 Per Pound
Premium for Navy Arnel—$.37 Per Pound

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

CELLULOSIC HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective February 6, 1961

Industrial Yarn Prices

Prices Subject To Change Without Notice

	Denier/Filament	Standard Beams	Standard Cones
TYREX (ENKA—5000)	1100/720	.57	.595
	1650/1100	.51	.535
	2200/1440	.48	50.5
	3300/2160	.48	50.5
TYREX FABRIC (ENKA—5000)	1100/720	.69	
	1650/1100	.60	
	2200/1440	.57	
	3300/2160	.57	
SUPRENKA M	1230/720	.57	.595
	1600/1100	.53	.555
	1800/1100	.51	.535
	1870/1100	.51	.535
	2200/1440	.48	50.5
	2400/1440	.48	50.5
	3300/2160	.48	50.5
	3650/2160	.48	50.5
SUPRENKA MS	1100/720	.57	.595
	1650/1100	.51	.535
	2200/1440	.48	50.5
	2200/1440 (5.52)	.505	.53
	3300/2160	.48	50.5
SUPRENKA 2000—MECHANICAL AND CHAFER	1100/480	.56	.585
	1230/480	.56	.585
	1650/720	.50	.525
	1820/720	.50	.525
High & Low Elongation	2200/960	.47	49.5
	2400/960	.47	49.5
	3300/2160	.47	49.5
	1130/480 (5.0Z)	.60	.60
SUPRENKA 2000—SEWING YARN	1230/480	.62	.62
	1750/720	.52	.52
	1820/720	.51	.51
ENKA H. MOD.	1100/1100	.67	.67
	1650/1644	.61	.61
	2200/2160	.58	.58
HIGH TENACITY	300/40, 300/120	.75	.75
	900/120	.71	.71
REGULAR TENACITY	100/40	.98	.98

American Viscose Corp.

Effective February 9, 1961

Tyrex*
Tyrex* Rayon Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	980	O	.57	.595
1100	980	Z	.57	....
1650	1500	O	.51	.535
1650	1500	Z	.51	....
2200	1500	O	.48	.505
3300	3000	O	.48	.505

Tyrex* Rayon Tire Fabric

Denier	Filament	Carcass	Top Ply	Breaker
1100	980/2	.69	.69	.69
		Factor Open-525	300-490	115-272
1650	1500/2	.60	.61	.635

Factor—determined by dividing total ends by picks.

* Tyrex—Trademark of Tyrex Inc.

Rayon Tire Yarn
Yarn
High Strength

Denier	Filament	Twist	Unslashed Beams	Unslashed Cones	Slashed Beams	Slashed Cones
1100	490	O	....	....	.56	.585
1150	490	Z	.56	.585	....	....
1650	980	Z	.50	.525	....	....
1650	980	O	....	....	.50	.525
1875	980	Z	.50	.525	....	....
2200	980	O	....	....	.47	.495

Super "Rayflex"

Type 120						
1800	1500	O	....	.535	....	....
4400	3000	O	....	....	.48	.505

Chafer Yarn

1100/490 High Strength 5Z Twist	.60	.60

Adhesive Dipped Yarn or Cord

.06 PREMIUM

Cord on cones in regular Tire Yarn twists same as fabric prices.
Other twist combinations—prices quoted on request.
Special packages take premiums indicated:

4.0 oz. Wardwell Tubes	.20
10.5 oz. Wardwell Tubes	.10
1.5 lb. Regular Braider Tubes	.06
3.5 lb. Tubes	.045

Single Yarn—Based on cone price.
Plied Yarn—Based on fabric price.
All yarns sold "Not guaranteed for dyeing"
The following deposit charges are made on invoices:

Beams	$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition freight collect.

Rayon Tire Yarn and Fabric

Terms: Net 30 days. Seller to select and to pay transportation charges of common and contract carrier except when shipment moves West of the Mississippi River, in which event the actual cost of transportation to the Mississippi River crossing based on the lowest published freight rate, shall be allowed. Title to pass when merchandise is delivered to consignee. Transportation allowance based on lowest published volume rate shall be granted if merchandise is transported from shipping point in vehicle owned or leased and operated by buyer and title to pass when merchandise is delivered to same.

Price subject to change without notice.

Inferior Yarns—Designated HS-SR	.06 Below First Quality Price
Skein Yarn	.04 Above First Quality Price
Adding 6 Turns to "O" Twist Yarn	.05

"Avisco" Industrial Sewing Thread

Effective March 1, 1961

Denier	Filament	Description	Twist	Package	Price
1100	980	Super "Rayflex" 120	O	9 lb. cone	.64
1100	980	Super "Rayflex" 120	2Z	4 lb. cone	.64
1500	980	Super "Rayflex" 120	O	9 lb. cone	.59
1500	980	Super "Rayflex" 120	2Z	4 lb. cone	.59
1780	1500	Super "Rayflex" 120	O	9 lb. cone	.55
1780	1500	Super "Rayflex" 120	2Z	4 lb. cone	.55

Domestic freight prepaid.

Prices subject to change without notice.

Celanese Fibers Company

Effective December 27, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	$3.00 lb.	$3.35 lb.
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Effective May 11, 1961

"Super Cordura"*

Den Fil	Turns/In	Beams	Cones
1100-720	2	.57	.595
1200-720	2		.595
1600-960	2		.555
1650-1100	2	.51	.535
1800-1100	2	.51	.535
2200-1440	2	.48	.505
2400-1440	2	.48	.505

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Co.,—Div. of Midland-Ross

Effective June 15, 1961

Tyron

High Tenacity Yarns and Cords for Industrial Products

Denier	Filament	Turns per Inch	Cones	Beams
1100	720	3.0 "Z"	.585	.56
1150	720	3.0 "Z"	.585	.56
1650	1100	3.0 "Z"	.525	.50
1700	1100	3.0 "Z"	.525	.50
2200	1440	3.0 "Z"	.495	.47
3300	2200	3.0 "Z"	.495	.47

Tyrex*
Tyrex* Rayon Tire Yarn

Denier	Filament	Twist	Cones	Beams
1100	720	Z	.595	.57
1650	1100	Z	.535	.51
2200	1440	Z	.505	.48
3300	2200	Z	.505	.48

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.

* Tyrex—Trademark of Tyrex Inc.

North American Rayon Corporation

Current Prices

Super Super High Strength Continuous Yarn Type 710		Cones	Beams
1100/720	1.6Z	.57	.57
1650/720/1100	2.0Z	.51	.51
Tire Cord Fabrics			
Super Super High Strength Type 710			**Rolls**
1100/720			.69
1650/720			.60

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold f.o.b. delivery point.

Prices are subject to change without notice.

CELLULOSIC STAPLE & TOW

ACETATE

Celanese Fibers Company Effective March 2, 1959

Staple

(Most Deniers Available in Bright or Dull Luster)

Celanese Acetate Staple	
3, 5.5 & 8 Denier (Regular Crimp, Type HC, Type D)	$.36
2, 12 & 17 Denier (Regular Crimp, Type HC, Type D)	.37
35 Denier	.38
50 Denier	.40
Type F—5.5 & 8 Denier	.35
Type F—12 & 17 Denier	.36
Type K—(Available under Celanese License Agreement)	.39
⅝" to ⅞" length (All Deniers)	.03 (Premium)
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.29*

Tow (Celatow)

3, 5.5 & 8 Denier	$.37
2, 12 & 17 Denier	.38
35 Denier	.40
35 Denier Flat Filament Acetate Tow	.42
50 Denier	.42

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

* No transportation allowed (F.O.B. shipping point.)

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

RAYON

American Viscose Corp. Current Prices

Rayon Staple

	Bright and Dull
Regular	$ .28
"Viscose 22"	.28
1.25 Denier	.31
All Other Deniers	.28
Hi-Crimp	.28
Bleached Crimp	
1.5, 3.0 Denier	.315
Smooth	
8.0 & 15.0 Denier Smooth	.30
22.0 Denier	.32
Bleached	.33
Extra Strength	
0.75 Denier	.40
1.0 Denier	.35
XL	
1.0 Denier	.40
1.5, 3.0 Denier	.37
XLJ	.34
Fiber 40	
1.0 Denier	.43
1.5 Denier	.40

Spun Dyed Black Staple

1.5, 3.0, 5.5 Denier	.37
15.0 Denier crimped	.40

Prices of other colors on request.

Tow

1.5, 3.0, 5.5 Denier	.35
9.0 Denier	.37
15.0, 20.0 Denier	.38
Color spun black tow	.42

Terms: Net 30 days.

American Enka Corp.

Current Prices Effective April 1, 1960

Rayon Staple

Regular Crimp

	Brt.	Dull
1.5 and 3 denier	$ .28	$ .28

High Crimp

4.5 denier	.28	....
6.5 denier	.28	.28
8 denier	.28	....
15 denier	.28	.28

Celanese Fibers Company

Effective May 1, 1959

Rayon Tow

	Bright & Dull
1.5, 3, 5.5 D.P.F. Total denier 200,000	.35
8 D.P.F. Total denier 207,000	.37

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Courtaulds (Alabama) Inc.

Rayon Staple

	Bright	Dull
Regular Rayon Staple Fiber	$.28	$.28

Crimped Rayon Staple

High Crimped Rayon Staple Fiber	$.28	$.28

Coloray® Solution Dyed Rayon Staple

Color	Price per lb.
Black	$.35
Oyster	$.36
Silver Grey	$.41
Mocha	$.41
Tan	$.41
Medium Brown	$.41
Pumpkin	$.41
Aqua	$.42
Rose	$.42
Dawn Pink	$.42
Ecru	$.42
Dark Brown	$.42
Gold	$.45
Lilac	$.45
Slate Grey	$.45
Sulphur	$.46
Nugget	$.46
Light Blue	$.46
Crystal Blue	$.47
Apple Green	$.47
Sage	$.47
Peacock Blue	$.48
Medium Blue	$.50
Indian Yellow	$.51
Dark Blue	$.51
Hunter Green	$.51
Turquoise	$.52
Malachite Green	$.53
Red	$.58

In addition to the above, Black is also available in:

1½ den. 1½"	5½ den. 3"
3 den. 1½"	5½ den. 6"
3 den. 1-9/16"	

Terms: Net 30 days f.o.b. LeMoyne, Alabama: Minimum transportation allowed to points in U.S.A. east of Mississippi River.

Corval® Cross Linked Rayon

Man-made, cross-linked, regular or crimped cellulosic staple, semi-dull and dull ..... $.37 per lb.

Topel® Cross-Linked Rayon

Man-made, cross-linked, cellulosic staple, semi-dull and dull ..... $.37 per lb

Terms: Net 30 days f.o.b. LeMoyne, Alabama: Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Fibres Co.

Div. Bigelow-Sanford, Inc.

Rayon Staple

Effective October 20, 1960

Regular

1.5 & 3.0 denier Bright & Dull, 1-9/16", 2" .28

White (Crimped)

8 denier 3" Bright .28
15 denier 3" Bright .28
15 denier 3" Dull .28

"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	.39	.39	....
Sandalwood	.39	.39	....
Nutria	.39	.39	....
Sea Green	.39	.39	....
Mint Green	.39	.39	....
Champagne	.39	.39	....
Midnight Black	.39	....	.39
Gold	.39	.39	....
Turquoise	.39	.39	....
Melon	.39	.39	....
Capri Blue	.39	.39	....
Charcoal Grey	.39	.39	....
Coco	.39	.39	....
Sable	.39	....	.39
Tangerine	.59	....	.59
Chinese Red	.59	....	.59
Larkspur Blue	.39	.39	....
Royal Blue	.59	....	.59
Lemon Peel	.48	.48	....
Kelly Green	.45	.45	....
Bitter Green	.59	....	.59
Brazil	....	.39	....
Redwood	....	....	.39
Frost Green	....	.39	....
Mist Grey	....	.39	....
Medium Brown	....	.39	....
Dark Brown	....	....	.39
Woodtone	....	.39	....

Hydro-Pruf Silicones

(Continued from Page 28)

to give to fabrics with wash and wear finishes the ability to preserve a crisp, new feel. Finishing plants have often confirmed what is one of Hydro-Pruf's most notable properties—the fact that it does not produce a color change on napthol dyed fabrics.

Recently, bringing to fruition its long experience with highly practicable silicones for fabric finishing, Arkansas has brought out a new addition to its line, Hydro-Pruf C, mentioned above. The new product is a durable water repellent for cotton fabrics and blends containing 50% or more of cotton fibers. Such fabrics treated with Hydro-Pruf C are durably water repellent and will stand as noted above many washings at the boil in the presence of the alkaline extenders commonly used in commercial laundries. It is, of course, along with the other Hydro-Pruf formulations, durable to many drycleanings. Other advantages of Hydro-Pruf C are that it produces a finer hand on cotton fabrics and a much improved drape.

Arkansas also reports that Hydro-Pruf C possesses a high degree of stabilization and does not break down on continuous operation; consequently it will not spot the fabric or oil out on the rolls when applied. The new silicone finish is compatible with most thermosetting resins and color fixatives and requires no extra operation or prewashes in its application to cotton fabrics. Of special interest, Arkansas believes, is that cotton fabrics dyed with napthol colors may be made durably water repellent without shade change. Technical service bulletins on these finishes are available from Arkansas Co., Box 210, Newark, N. J.

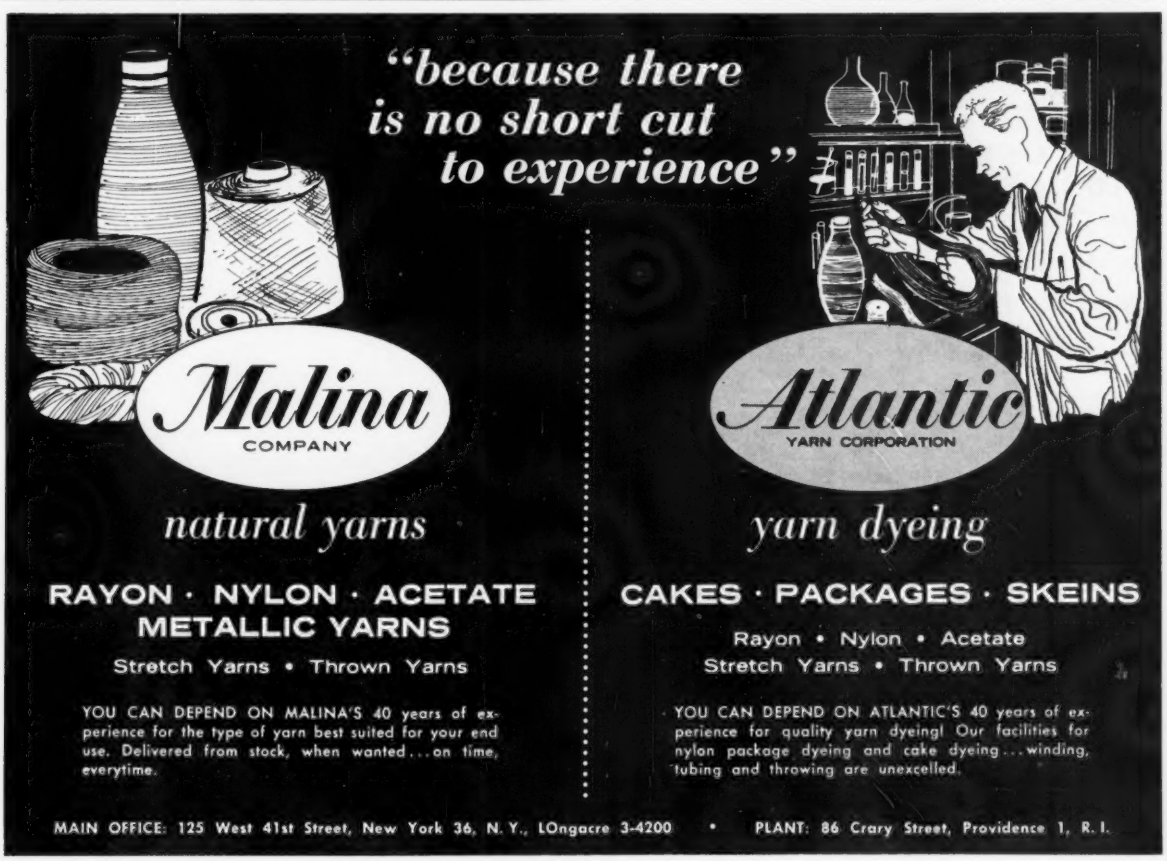
Extra Copies Now Available of MTM Special AATT Conference Issue

A special edition of MODERN TEXTILES MAGAZINE, in which leaders of virtually all major segments of textiles frankly assess the industry's problems and explore possible solutions is now available. Entitled "The Challenge of Modern Fiber Technology", the special issue, published last month, is made up of the full verbatim proceedings of the First Annual Conference of the American Association for Textile Technology.

The Conference, held on February 8 in New York City, consisted of four panel discussions in which spokesmen for retailers, end product manufacturers, converters and mill managements analyzed the problems facing their respective segments of the industry by answering questions submitted by the audience.

Each of the panel discussions was opened by a keynote speaker who broadly reviewed the scope of his panel's interests. Among the speakers were P. J. Fynn, J. C. Penney Co.; William N. Doniger, McGregor-Doniger, Inc.; Abbott Copeland, United Merchants & Manufacturers, and Robert M. Cushman, Amerotron Corp. Other important speakers at the Conference whose talks are reprinted in the Special Edition were J. M. Cheatham, president of the American Cotton Manufacturers Institute, William F. Clark, United States Rubber Co., K. J. Winter, president of the American Association for Textile Technology, and A. H. McCollough, publisher of MODERN TEXTILES MAGAZINE

Copies are available at one dollar each by writing the magazine at 303 Fifth Avenue, New York 16, N. Y.


"because there is no short cut to experience"
Malina
COMPANY
natural yarns
RAYON · NYLON · ACETATE
METALLIC YARNS
Stretch Yarns • Thrown Yarns
YOU CAN DEPEND ON MALINA'S 40 years of experience for the type of yarn best suited for your end use. Delivered from stock, when wanted...on time, everytime.
Atlantic
YARN CORPORATION
yarn dyeing
CAKES · PACKAGES · SKEINS
Rayon • Nylon • Acetate
Stretch Yarns • Thrown Yarns
YOU CAN DEPEND ON ATLANTIC'S 40 years of experience for quality yarn dyeing! Our facilities for nylon package dyeing and cake dyeing...winding, tubing and throwing are unexcelled.
MAIN OFFICE: 125 West 41st Street, New York 36, N. Y., LOngacre 3-4200 • PLANT: 86 Crary Street, Providence 1, R. I.

Antique Gold	....	.39	....
Light Turquoise	....	.39	....
Hunter Green	....	.39	....

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

"Zantrel Polynosic" Rayon

Effective August 14, 1959

Man-made, cellulosic staple.

Semi-Bright, 1 denier, 1 9/16"	$.45 per lb.
1½ denier, 1¼" and 1 9/16"	.42 per lb.
3 denier, 1 9/16" and 2"	.42 per lb.

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

North American Rayon Corporation

Current Prices

Rayon Staple

Super High Tenacity	Bright
No. 1 (Unshrunk)	
1, 1.5 & 2.3 deniers	.40
No. 2 (Preshrunk)	
1, 1.5 & 3 deniers	.40

Rayon Tow

High Tenacity	
2200/960	.52
2200/2000	.525
4400/2000	.475
4400/2934	.475
6000/2934	.425

"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

TRIACETATE

Celanese Fibers Company

Current Prices Effective June 7, 1957

(Most Deniers Available in Bright or Dull Luster)

Arnel Staple and Tow

Arnel Triacetate Staple	Bright & Dull
2.5 Individual Denier	$.55
5.0 Individual Denier	.55
Arnel Triacetate Tow	
2.5 Individual Denier 114,000 Total Denier	$.60
5.0 Individual Denier 90,000 Total Denier or 180,000 Total Denier	.60

Packaged on Ball Warps

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

NON CELLULOSIC YARN

NYLON

Allied Chemical Corporation

Caprolan®

Current Yarn Prices: Effective May 1, 1960

Denier	Filament	Turn/In.	Twist	Type**	Package	1st Grade Price/Lb.
140	16	1½	Z	B	Cones*	$1.60
140	16	1½	Z	B	Beams	1.65
200	16	1½	Z	B	Cones*	1.49
200	16	1½	Z	B	Beams	1.54
200	32	¾	Z	B	Bobbins	1.49
200	32	¾	Z	B	Beams	1.54
210	32	1	Z	HB	Bobbins	1.49
260	16	1	Z	HB	Bobbins	1.49
420	64	½	Z	HBT	Bobbins	1.39
420	64	½	Z	HBT	Beams	1.44
520	32	1	Z	B	Bobbins	1.39
520	32	1	Z	B	Beams	1.44
840	136	½	Z	HBT	Al. Tubes	0.94
840	136	½	Z	HBT	Beams	0.92
1680	272	½	Z	HBT	Al. Tubes	0.94
1680	272	½	Z	HBT	Beams	0.92
1050	56	½	Z	B	Al. Tubes	1.15
2100	112	½	Z	B	Al. Tubes	1.11
4200	224	0	O	B	Paper Tubes*	1.10
2100	408	0	O	HB	Paper Tubes*	0.97
2500	408	0	O	HB	Paper Tubes*	0.97
3360	544	0	O	HB	Paper Tubes*	0.96
4200	680	0	O	HB	Paper Tubes*	0.96
5000	816	0	O	HB	Paper Tubes*	0.96
5800	952	0	O	HB	Paper Tubes*	0.96
7500	1224	0	O	HB	Paper Tubes*	0.95
10000	1632	0	O	HB	Paper Tubes*	0.95
15000	2448	0	O	HB	Paper Tubes*	0.95

Terms—Net 30 days.

Price subject to change without notice.

Bobbins are invoiced at 45¢ ea.

Aluminum Tubes are invoiced at 40¢ ea.

Beams are invoiced at $220.00.

Cradles for beams are invoiced at $53.00.

B—Bright
H—High Tenacity
T—Heat Stabilized

* Paper Tubes and Cones non-returnable, no charge.

** Type is used to describe luster and tenacity.

All prices quoted F.O.B. Shipping Point.

Minimum transportation charges allowed and prepaid in Continental United States, excluding Alaska.

American Enka Corporation

Enka Nylon Prices

Effective March 21, 1961

Denier/Mono Filament	Luster	Twist	Package	Price Per Pound Standard	Price Per Pound Substandard
15/1	SD or D	0.5Z	Pirns	3.89	3.69
15/1	SD or D	0.5Z	Spools	4.00	....
20/1	SD	0.5Z	Pirns	3.53	3.30
20/6	SD	0.5Z	Pirns	2.91	2.61
20/6	SD	0.5Z	Spools	3.02	....
20/6	Dull	0.5Z	Pirns	2.96	2.61
20/6	Dull	0.5Z	Spools	3.07	....
30/1	SD	0.5Z	Pirns	4.13	3.93
30/6	SD	0.5Z	Pirns	2.36	2.21
30/6	SD	0.5Z	Spools	2.46	....
40/8-13	SD	0.5Z	Pirns	2.01	1.91
40/8-13	SD	0.5Z	Spools	2.11	....
40/8	SD-B de B*	0.5Z	Pirns	2.10	2.00
40/13	Dull	0.5Z	Pirns	2.06	1.96
40/13	Dull	0.5Z	Spools	2.16	....
50/13	SD	0.5Z	Pirns	1.91	1.76
50/13	SD	0.5Z	Spools	2.01	....
50/13	SD-B de B*	0.5Z	Pirns	2.00	1.85
50/13	SD-B de B*	0.5Z	Spools	2.10	....
70/16-32	B or SD	0.5Z	Pirns	1.71	1.66
70/32	SD-B de B*	0.5Z	Pirns	1.80	1.75
100/32	SD	0.5Z	Pirns	1.65	1.60
100/32	SD-B de B*	0.5Z	Pirns	1.74	1.69
140/24	Bright	1.5Z	Cones	1.60	1.55
140/24	Bright	1.5Z	Beams	1.65	....
140/32-64	SD	0.5Z	Pirns	1.60	1.55
140/32-64	SD-B de B*	0.5Z	Pirns	1.69	1.64
200/16-32	Bright	0.5Z	Cones	1.49	1.44
200/16-32	Bright	0.5Z	Beams	1.54	....
200/16-32	Bright	1.5Z	Cones	1.49	1.44
200/16-32	Bright	1.5Z	Beams	1.54	....
200/32	SD-B de B*	0.5Z	Cones	1.58	1.53
200/16-32	Bright	0.5Z	Cones	1.49	1.39
400/64	Bright	0.5Z	Cones	1.39	1.29
520/32	Bright	0.5Z	Cones	1.39	1.29
1040/68 Enkatron**	SD	0.5Z	Cones	1.30	1.20
1230/68 Enkatron**	SD	0.5Z	Cones	1.30	1.20
840/140	BHT	0.5Z	Cones	.94	.92
840/140	BHT	0.5Z	Beams	.92	....

* Blanc de Blancs = Enka Trademark White of Whites.

** Enkatron = Enka Trademark Multilobal Yarns.

*Luster: B—Bright; H—High Tenacity; T—Heat Stabilized; SD—Semi-Dull; D—Dull; *SD-B de B.

Pirns invoiced at 25¢ or 45¢ each, depending on type. Deposits refunded upon return of pirns in good condition. Cones are not returnable. Spools, Beams and Racks are deposit carriers and remain the property of American Enka Corporation.

Terms: Net 30 days from date of invoice. Minimum common carrier transportation charges will be prepaid and absorbed to first destination in the continental limits of the United States excluding Alaska and Hawaii. In prepaying transportation charges, seller reserves the right to select carrier used.

All prices subject to change without notice.

*B de B—Blanc de Blancs®—White of Whites Color.

The Chemstrand Corp.

Current Prices Effective January 1, 1960

Denier	Filament	Twist	Type	Package	Standard Price/lb.	Second Price/lb.
10	1	O	SD	Bobbins	$7.16	$6.56
* 15	1	O	RSD	Bobbins	3.89	3.69
15	1	O	RSD	Spools	4.00	....
15	1	O	Dull	Bobbins	3.89	3.69
15	1	O	Dull	Spools	4.00	....
20	7	Z	RSD	Bobbins	2.91	2.61
20	7	Z	RSD	Spools	3.02	....
* 30	10	Z	RSD	Bobbins	2.36	2.21
* 30	26	Z	RSD	Bobbins	2.49	2.21
* 40	10	Z	RSD	Bobbins	2.01	1.91
* 40	13	Z	RSD	Bobbins	2.01	1.91
40	13	Z	RSD	Spools	2.11	....
40	13	O	RSD	Draw Wind	2.01	1.91
* 40	13	Z	Dull	Bobbins	2.06	1.96
40	13	Z	Dull	Spools	2.16	....
40	13	O	Dull	Draw Wind	2.06	1.96
* 50	17	Z	RSD	Bobbins	1.91	1.76
50	17	O	RSD	Draw Wind	1.91	1.76
* 50	17	Z	Brt.	Bobbins	1.91	1.76
70	17		RSD	Bobbins	1.71	1.66
* 70	20	Z	RSD	Bobbins	1.71	1.66
* 70	34	Z	RSD & SD	Bobbins	1.71	1.66
70	34	O	RSD & SD	Draw Wind	1.71	1.66
70	34	Z	Brt.	Bobbins	1.71	1.66
70	34	O	Brt.	Draw Wind	1.71	1.66
70	34	Z	HB	Bobbins	1.76	1.66
70	34	O	HB	Bobbins	1.76	1.66
70	34		RB	Bobbins	1.71	....
90	26	Z	RSD	Draw Wind	1.76	1.66
100	26	Z	RSD	Bobbins	1.65	1.60
100	34	Z	RSD	Bobbins	1.65	1.60
100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
140	68	Z	Brt.	Bobbins	1.60	1.55
* 200	34	Z	Brt.	Bobbins	1.49	1.44
200	34	O	Brt.	Draw Wind	1.49	1.44
200	34	Z	Brt.	Spools	1.54	....
* 200	68	Z	RSD	Bobbins	1.56	1.46
210	34	Z	HB	Bobbins	1.49	1.44
210	34	O	HB	Draw Wind	1.49	1.44
210	34	Z	HB	Spools	1.54	....
210	34	Z	HB	Beams	1.54	....
210	34	Z	RHB	Bobbins	1.49	1.44
260	17	Z	HB	Bobbins	1.49	1.39
260	17	Z	HB	Beams	1.54	....
420	68	Z	HB	Bobbins	1.39	1.29
420			RHB	Bobbins	1.39	1.29
520	34	Z	HB	Bobbins	1.39	1.29
720	140	Z	RHB	Beams	.99	....
780	51	Z	HB	Tubes	1.39	1.29

Du Pont to Produce New Polyamide

A pilot plant for the production of a new Du Pont fiber will be constructed at Richmond, Va. The new facility will produce HT-1, a high-temperature-resistant polyamide which shows promise in industrial uses including electrical insulation, filtration of hot gases, special-duty beltings and reinforcement of high-temperature hose. The company said its application in various military uses is also being explored.

Construction is already under way and the pilot unit is scheduled to be completed late in 1962. It will be built in an area on the Richmond site which once housed a part of the company's rayon plant. At present Du Pont's Richmond plants make high tenacity rayon and nylon for tire cord and other industrial products; "Teflon" TFE-fluorocarbon fiber; cellophane; and acetate and polyethylene films.

Du Pont said the new HT-1 fiber is a product of more than 12 years of research originating in its pioneering research laboratories in Wilmington, Dela. The development work on HT-1 has been carried forward at Du Pont's Benger Laboratory located at Waynesboro, Va.

New Creel Tension Device

A new creel tension device which is said to have many advantages has been introduced by Edward J. McBride Co., Inc. A disc and post type device, the new creel tension, tradenamed "Monitor", is said to combine maximum tension adjustment with rugged construction.

The unit has two center tension posts mounted on a turntable which is calibrated into eight selective positions which may be adjusted through a maximum range of 180 degrees. By changing the turntable setting, eight different angles of yarn wrap are obtainable, thus producing eight different levels of output tension.

Provision has been made for the addition of one or two more tension posts by supplying two mounting positions just outside the periphery of the turntable and at 180 degree extremes. Low magnitude tension adjustment is accomplished by pressing the release button located in the front center of the base. This frees the normally locked turntable which may then be rotated to obtain the desired amount of tension in the yarn. Substantial increase in tension may be obtained by the use of heavier tension discs, adding tension posts, or a combination of both. *For further information write the editors.*

Improved Dyeing Assistant

A new leveling and retarding agent, "Dyasist #486" for use in dyeing woolen fabrics and yarns has been developed by Arkansas Co., Inc., P.O. Box 210, Newark, N. J. According to its manufacturer, the new product is particularly applicable where acid dyes requiring sulfuric acid are used and in such cases, produces extremely level and uniform dyeings. It may also be used with most milling colors with excellent results.

In addition to its use as a leveling agent in dyeing, Dyasist #486 is recommended for stripping dyed material before redyeing. It is mildly cationic in nature and practically neutral in reaction. In consistency, it is an amber liquid which dissolves readily in water. The storage properties of Dyasist #486 are said to be excellent under normal atmospheric conditions.

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FFN
SPECIAL

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Like to know more about this versatile Laurel finishing agent? Write for complete details and a generous sample. No obligation, of course.

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840	140	Z	HB	Tubes	.94	.92
840	140	Z	HB	Beams	.92	.90
840	140	Z	HB	Cones	.95	.93
840	140	Z	RHB	Tubes	.94	.92
840	140	Z	RHB	Beams	.92	.90
840	140	Z	RHB	Cones	.95	.93
840	140	Z	HB	Paper Tubes	.94	.92
840	140	Z	RHB	Paper Tubes	.94	.92
840	140	Z	RHB	Textile Grade—W.W.	1.06	.92
840	140	Z	HB & RHB	Raschel Spools	1.00	....
1050	170		RHB	Tubes	.94	.92
1680	280	Z	RHB	Tubes	.94	.90
1680	280	Z	RHB	Beams	.92	....
1680	280	Z	RHB	Cones	.95	.91
1680				Spools	.99	.91

Cumuloft®

520	34	Z	RB	Tubes	2.05	....
1040	68	Z	RB	Tubes	1.74	....
1230	68	Z	RSD	Paper Tubes	1.53	....
2080	136	Z	RB	Tubes	1.66	....
3690	204	S	RSD	Cones	1.47	....

Cadon™

15	1	O	Brt.	Bobbins	4.90	4.70
15	1	O	Brt.	Spools	5.01	....
70	34	Z	RSD	Bobbins	1.81	....
200	34	Z	RB	Bobbins	1.54	....
520	34	Z	RB	Bobbins	1.44	1.34
1040	68	Z	RB & RSD	Tubes	1.30	1.20
1230	68	Z	RSD	Tubes	1.30	1.20
2080	136	Z	RB	Tubes	1.26	....

• These counts also available in Warp Wind package at price shown for Bobbins.

• Types: D—Dull; SD—Semi-dull; B—Bright; H—High tenacity.

Bobbins are invoiced at 25¢ or 45¢, depending on type; tubes are invoiced at 40¢ each; spools invoiced at $95.00, $110.00, and $115.00, depending on type; and beams and crates for beams are invoiced at $220.00 and $25.00 respectively.

Prices subject to changes without notice.

Freight prepaid within Continental United States and Puerto Rico.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	First Grade	Second Grade
7-1	0	200	Bobbin	$8.05	$7.40
10-1	0	200	Bobbin	7.16	6.56
12-1	0	200	Bobbin	6.35	5.85
15-1	0	90	Bobbin	4.90	....
15-1	0	90	Kntg. Beam	5.01	....
15-1	0	200	Kntg. Beam	4.00	....
15-1	0	200/280	Bobbin	3.85	3.69
15-1	0	680	Kntg. Beam	4.00	....
15-1	0	680	Bobbin	3.89	3.69
20-1	0	200/280	Bobbin	4.03	3.68
30-1	0	200	Bobbin	4.13	....
40-1	0	100	Bobbin	4.03	3.75
14-2	0.2Z	200	Bobbin	6.72	6.12
17-2	0.2Z	200	Bobbin	5.96	5.41
20-2	0.2Z	200	Bobbin	4.71	4.27
15-3	0.2Z	200	Bobbin	5.19	4.69
21-3	0.2Z	200	Bobbin	4.70	4.27
20-7	0.5Z	200	Bobbin	2.91	2.61
20-7	0.5Z	200	Kntg. Beam	3.02	....
20-7	0.5Z	680	Bobbin	2.96	2.61
20-7	0.5Z	680	Kntg. Beam	3.07	....
20-17	0.5Z	280	Bobbin	3.51	....
20-17	0.5Z	280	Kntg. Beam	3.62	....
20-20	0.7Z	209	Bobbin	6.00	....
28-4	0.2Z	200	Bobbin	2.81	2.61
30-10	0	200	Drawwinder Tube	2.36	2.21
30-10	0.5Z	200/280	Bobbin	2.36	2.21
30-10	0.5Z	200/280	Kntg. Beam	2.46	....
30-10	0.5Z	300	Bobbin	2.51	2.36
30-10	0.5Z	680	Bobbin	2.41	2.21
30-10	0.5Z	680	Kntg. Beam	2.51	....
30-26	0.5Z	200/280	Bobbin	2.49	2.21
30-26	0.5Z	200/280	Kntg. Beam	2.59	....
40-7	0.5Z	200	Bobbin	2.11	1.91
40-10	0.5Z	200/280	Bobbin	2.01	1.91
40-10	0.5Z	200/280	Kntg. Beam	2.11	....
40-13	0.5Z	200/280	Kntg. Beam	2.11	....
40-13	0.5Z	100/200/280	Bobbin	2.01	1.91
40-13	0	200	Drawwinder Tube	2.01	1.91
40-13	0.5Z	300/400/480	Bobbin	2.13	1.90
40-13	0.5Z	680	Bobbin	2.06	1.96
40-13	0.5Z	680	Kntg. Beam	2.16	....
40-34	0.5Z	200	Bobbin	2.21	1.81
50-10	0.5Z	200/280	Bobbin	2.11	1.76
50-17	0.5Z	100/200/280	Bobbin	1.91	1.76
50-17	0	200	Drawwinder Tube	1.91	1.76
50-17	0.5Z	680	Bobbin	2.01	1.76
50-17	0	685	Paper Tube	2.01	1.76
60-20	0.5Z	200/280/288	Bobbin	1.82	1.65
60-34	0.5Z	300	Bobbin	1.86	1.76
70-17	0.5Z	200/288	Bobbin	1.71	1.66
70-20	0.5Z	288	Bobbin	1.71	1.66
70-34	0.5Z	91	Bobbin	1.80	1.75
70-34	0.5Z	100/180/200	Bobbin	1.71	1.66
70-34	0	105/205	Paper Tube	1.71	1.66
70-34	0	100/200/285	Drawwinder Tube	1.71	1.66
70-34	0.5Z	280/288	Bobbin	1.71	1.66
70-34	0.5Z	300/680	Bobbin	1.76	1.66
70-34	0	680/685	Paper Tube	1.76	1.66
80-26	0.5Z	200	Bobbin	1.71	1.60
90-26	0.5Z	200/288	Bobbin	1.76	1.66
100-34	0.5Z	200/288	Bobbin	1.65	1.60
100-34	0	300	Drawwinder Tube	1.70	1.60
100-34	0.5Z	300/680	Bobbin	1.70	1.60
100-50	0.5Z	200/288	Bobbin	1.71	1.60
110-50	0.5Z	200	Bobbin	1.71	1.60
140-34	0.5Z	680	Bobbin	1.65	1.60
140-68	0.5Z	91	Bobbin	1.69	1.64
140-68	0.5Z	100/180/280	Bobbin	1.60	1.55
140-68	0	200	Drawwinder Tube	1.60	1.55
140-68	0.5Z	200/288	Bobbin	1.60	1.55
140-68	0.5Z	300	Bobbin	1.65	1.55
140-68	0.5Z	680	Bobbin	1.65	1.60
200-20	0.7Z	100/180	Bobbin	1.49	1.44
200-34	0	100	Drawwinder Tube	1.49	1.44
200-34	0.7Z	100/280	Bobbin	1.49	1.44
200-34	0	105	Paper Tube	1.49	1.44
200-34	0.7Z	680	Bobbin	1.54	1.44
200-68	0.7Z	100/200	Bobbin	1.56	1.46
210-34	0	300	Drawwinder Tube	1.49	1.44
210-34	0.7Z	300/330	Bobbin	1.49	1.44
210-34	0.7Z	300/330	Kntg/Section Beam	1.54	....
210-34	0	305	Paper Tube	1.49	1.44
260-17	1Z	300/380	Bobbin	1.49	1.39
400-68	0.7Z	100	Bobbin	1.39	1.29
420-68	1Z	300	Bobbin	1.39	1.29
420-68	1Z	300	Kntg/Section Beam	1.44	....
520-34	1Z	300/380	Bobbin	1.39	1.29
630-102	0.7Z	300	Bobbin	1.39	1.29
780-51	1Z	300/380	Bobbin	1.39	1.29
800-140	0.5Z	100	Bobbin	1.39	1.29
840-136	1Z	300	Bobbin	1.34	1.24
840-136	1Z	300	Kntg/Section Beam	1.39	....

Nylon Filament "Antron" Yarn Prices

20-7	0.5Z	560 Brt.	Bobbin	3.06	2.76
20-7	0.5Z	560 S.D.	Bobbin	3.06	2.76
30-10	0.5Z	560 S.D.	Bobbin	2.46	2.31
40-13	0.5Z	560 Dull	Bobbin	2.16	2.06
40-13	0.5Z	560 Mid-Dull	Bobbin	2.11	2.01
40-13	0.5Z	560 S.D.	Bobbin	2.11	2.01
40-13	0.5Z	560 Brt.	Bobbin	2.11	2.01
50-17	0.5Z	560 S.D.	Bobbin	2.01	1.86
70-34	0	565 S.D.	Paper Tube	1.81	1.76
70-34	0.5Z	560 S.D.	Bobbin	1.81	1.76
70-34	0	560 S.D.	Drawwinder Tube	1.81	1.76
200-20	0.7Z	560 Brt.	Bobbin	1.54	1.49
200-34	0.7Z	560 S.D.	Bobbin	1.54	1.49
200-34	0	565 S.D.	Paper Tube	1.54	1.49
520-34	1Z	560 Brt.	Bobbin	1.44	1.34
780-51	1Z	560 Brt.	Bobbin	1.44	1.34

• Antron is DuPont's registered trademark for its trilobal multifilament nylon yarn.

Color-Sealed Black Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.5Z	140	Bobbin	$2.71	$2.56
40-13	0.5Z	140	Bobbin	2.36	2.1σ
70-17	0.5Z	140/148	Bobbin	2.06	2.01
70-34	0.5Z	140	Bobbin	2.06	2.01
100-34	0.5Z	140	Bobbin	2.00	1.95
200-20	0.7Z	140	Bobbin	1.84	1.79
200-34	0.7Z	140	Bobbin	1.84	1.79
260-20	1Z	140	Bobbin	1.84	1.79

INDUSTRIAL YARNS

Tire Quality

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
840-140	0.5Z	300/700	Aluminum Tube	$.94	$.92
840-140	0.5Z	300/700	Beam	.92	....
840-140	0.5Z	300/700	Kntg Beam	1.00	....
1680-280	0.5Z	700	Cone, Paper Tube	.95	.92
1260-210	0.5Z	700	Beam	.92	....
1680-280	0.5Z	700	Aluminum Tube	.94	.92
1680-280	0.5Z	700	Beam	.92	....
840-140	0.5Z	300/700	Cone, Paper Tube	.95	.92

Industrial Quality

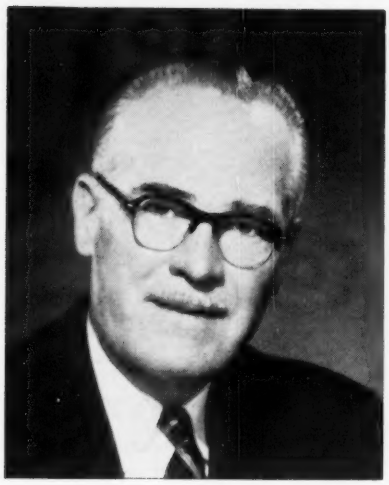
840-140	0.5Z	707	Cone, Pape Tube	.95
2520-420	0	700	Paper Tube	.97
3360-560	0	700	Paper Tube	.96
5040-840	0	707	Paper Tube	.99
5040-840	0	700	Paper Tube	.96
7560-1260	0	707	Paper Tube	.98
7560-1260	0	700	Paper Tube	.95
10080-1680	0	707	Paper Tube	.98
15120-2520	0	707	Paper Tube	.98

These prices are subject to change without notice. Terms: Net 30 Days

Types

Type 90—Bright, normal tenacity, trilobal—cross section.
Type 91—Semidull, super white, normal tenacity, for intimate apparel use only.
Type 100—Bright, normal tenacity.
Type 105—Bright, normal tenacity, low shrinkage (5-7%)
Type 140—Bright, color-sealed, black, normal tenacity.
Type 148—Bright, color-sealed Black, normal tenacity, for texturing.
Type 200—Semidull, normal tenacity.
Type 205—Semidull, normal tenacity, low shrinkage (5-7%)
Type 209—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 280—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 285—Semidull, normal tenacity, low shrinkage, improved light durability, and dye light fastness.
Type 288—Semidull, normal tenacity, for Texturing.
Type 300—Bright, high tenacity.
Type 305—Bright, high tenacity, low shrinkage (5-7%)
Type 330—Bright, high tenacity, more heat & light resistant.
Type 380—Bright high tenacity, improved light durability and dye light fastness.
Type 400—Semidull, high tenacity.
Type 560—Luster as designated—Modified cross section. Improved light durability and dye light fastness.
Type 565—Luster as designated—Modified cross section, low shrinkage. Improved light durability and dye light fastness.
Type 680—Dull, normal tenacity.

Malm Heads Industrial Rayon



L. Louis Malm

Election of L. Louis Malm as a vice president of Midland - Ross Corp. and his appointment as general manager of Industrial Rayon Co. were announced by F. L. Bissinger, group vice president of Midland-Ross. The rayon company was merged into Midland-Ross last month.

Prior to the merger, Malm was vice president in charge of research and engineering for Industrial Rayon. In his new post, he will be in charge of all operations of Industrial Rayon and will report to Bissinger. Malm joined Industrial Rayon's engineering staff in 1944. He was promoted to chief engineer in 1949, was elected vice president of engineering in 1958 and became vice president of research and engineering in 1960.

NO YARN TRAPPING WITH BRAZED ALUMINUM TWO POUND TAKE-UP BOBBIN

New aluminum take-up bobbin with barrel and heads brazed together into a single unit prevents yarn trapping. Exceptional strength at price no higher than ordinary bobbins.

Write us today for full details.

B W MACK **ALLENTOWN BOBBIN WORKS, INC.**

ALLENTOWN **PENNSYLVANIA**

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IF YOUR BUSINESS is hampered because you are reluctant to grant credit, you should know more about factoring. Your factor checks credits for you, assumes the credit risk on approved accounts, and advances in cash the net value of shipments as made.

John P. MAGUIRE & COMPANY

FACTORS
370 Fourth Avenue, New York
Murray Hill 3-4141

Inquire today about our factoring service

Type 700—Bright, high tenacity.
Type 707—Bright, high tenacity cordage yarn.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Following are invoiced as a separate item.

Bobbins—25 cents or 45 cents depending on type
Aluminum Tube—40¢ each
Draw Winder Tubes—$1.00
Industrial & Section Beams—$220.00 each
Racks for Industrial & Section Beams—$50.00 each
Tricot Beams—$95.00 or $250.00 each depending upon type
Racks for Tricot Beams—$70.00 or $130.00 each depending upon type
Raschel Beams—$85.00 or $100.00 each depending upon type
Racks for Raschel Beams—$70.00 each

Tricot and Raschel Beams are billed at the above prices if not returned within 90 days from date of invoice.

Section Beams are billed after 60 days, and Industrial Beams are billed after 60 days.

(Beams and Racks are deposit carriers and remain the property of E. I. du Pont de Nemours & Co., Inc.)

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"*

Denier & Filament	Turns/Inch	Luster	Type*	Package	Tubes 1st Gr.
30-14	0	Bright	55	Tube	$2.60
30-20	0	Semidull	56	Tube	2.60
40-27	0	Semidull	56	Tube	2.35
40-27	0	Bright	55	Tube	2.35
40-27	0	Dull	57	Tube	2.40
70-34	0	Semidull	56	Tube	1.97
70-14	0	Bright	55	Tube	1.97
70-34	0	Bright	55	Tube	1.97
70-34	0	Dull	57	Tube	2.02
100-34	0	Semidull	56	Tube	1.90
140-28	0	Bright	55	Tube	1.85
150-34	0	Semidull	56	Tube	1.85
220-50	0	Bright	51	Tube	1.76
250-50	0	Bright	55	Tube	1.76
1100-250	0	Bright	51	Core	1.50
1100-250	0	Bright	52	Core	1.50
1100-250	Ro2	Bright	52	Core	1.50
1100-250	Ro2	Bright	52	Beam	1.50

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the Continental limits of the U. S., excluding Alaska.

Yarn Types

* Type:
Type 51—Bright, high tenacity.
Type 52—Bright, high tenacity.
Type 55—Bright, normal tenacity.
Type 56—Semidull, normal tenacity.
Type 57—Dull, normal tenacity.

Tubes are invoiced as a separate item at $.70 each.

Industrial beams and cradles are billed if not returned within 60 days from date of invoice. They are then billed as separate items at $220.00 per beam and $50.00 per cradle and are returnable for credit.

*"DACRON" is DuPont's registered trade-mark for its polyester fiber.

SARAN

The National Plastics Products Company—Fibers Division Odenton, Maryland

Current Prices:

CONTINUOUS FILAMENT

Type	Twist p. i.	Natural	Colors
750/20*	3	1.75	1.80

* For filter fabrics and other industrial purposes only.

F.O.B. Odenton, Maryland

Terms: Net 30 days.

NON CELLULOSIC STAPLE & TOW ACRYLIC

American Cyanamid Co. Fibers Division

Effective Date: December 21, 1960

Cyanamid Acrylic Staple

	1st Grade Price (per pound)
2.0 Denier Bright and Semi-Dull	$1.28
3.0 Denier Bright and Semi-Dull	1.22
5.0 Denier Bright and Semi-Dull	1.22
15.0 Denier Bright and Semi-Dull	.89

Staple Lengths: 1½", 2" 2½", 3", 3½", 4", 4½".

Type WM—Designed for the woolen spinning system and is a blend of deniers (average 4) and length .94

Type BC—Designed for blending with cellulosics and is 2 or 3 denier 1½" semi-dull regular staple 1.08

Information provided on request for Deniers, Lengths and Lusters not listed above.

Prices are subject to change without notice.

Terms: Net 30 Days.

F.O.B. Shipping Point—Minimum transportation allowed (Seller's route and method) within the continental limits of the United States excluding Alaska. If Buyer requests and Seller agrees to a route or method involving higher than minimum rate, Buyer shall pay the excess transportation cost.

Note: CRESLAN® is Cyanamid's registered trademark for certain of its acrylic fibers. Use of this trademark is authorized only on properly constructed fabrics, after they have been tested and approved by Cyanamid.

The Chemstrand Corp.

"Acrilan"*

Current Prices Effective January 1, 1961

Denier	Type	Regular Acrilan "A" Qual.	Regular Acrilan 2nd Qual.	Acrilan 16 "A" Qual.	Acrilan 16 2nd Qual.
1.0	Staple	$	$	$1.28	$ ....
2.0	Staple	1.22	1.03	1.22	1.03
2.0	Tow	1.22	1.03	1.22	1.03
2.5	Hi-Bulk Staple	1.22	1.03	1.22	1.03
2.5	Hi-Bulk Tow	1.22	1.03	1.22	1.03
3.0	Staple	1.22	1.03	1.22	1.03
3.0	Tow	1.22	1.03	1.22	1.03
5.0	Staple	1.22	1.03	1.22	1.03
5.0	Tow	1.22	1.03	1.22	1.03
8.0	Staple	1.18	1.03	1.18	1.03
8.0	Tow	1.18	1.03	1.18	1.03
15.0	Staple	.95	....	.95	....
15.0	Tow	.95	....	.95	....

Staple and Tow available in Bright and Semi-Dull lusters.

Acrilan Spectran™

		Dark	Light
2.5	Staple	1.39	1.29
3.0	Staple	1.39	1.29
3.0	Tow	1.44	1.34

Acrilan Spectran—Staple and Tow available in Bright lusters only.
Dark—Black, Dark Blue, Brown, Dark Grey and Olive.
Light—Taupe, Gold, Beige and Light Grey.

Fiberfill	....	....	1.01	....
Types 77, 88 and 89 Staple	....	....	.97	....

TERMS: Net 30 Days.

F.O.B. shipping point, freight prepaid: seller to select and pay transportation charges of carrier to points within the continental limits of the United States, excluding Alaska.

* "Acrilan" is Chemstrand's registered trademark for its acrylic fiber.

The Dow Chemical Company

Textile Fibers Department Current Prices

"Zefran"* Acrylic Staple

2.0 denier Semidull & Bright—Staple only	$1.28
3.0 denier Semidull & Bright—Staple only	1.28
6.0 denier Semidull & Bright—Staple only	1.18
100% Blends of ZEFRAN acrylic fiber (For the Woolen System)	
Type W-2 (average denier of about 2.5)	$.99
Type W-4 (average denier of about 4.5)	.94

Terms: Net 30 days.

Transportation Terms: F.O.B. shipping point—Freight prepaid our route within the continental limits of the U. S., excluding Alaska.

* Registered trademark of The Dow Chemical Co.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

"Orlon"* Acrylic Staple & Tow

Type 42	Staple Length	Tow Blds.	1st Grade
2.0 Denier Semidull & Bright	1¼, 1½, 2, 2½, 3, 4½	470M	1.28
3.0 Denier Semidull & Bright	1¼, 1½, 2, 2½, 3, 4½	470M	1.30
3.0 Denier Color-sealed Black	1¼, 1½, 2, 2½, 3, 4½	470M	1.63
6.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.20
6.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55
4.5 Denier Semidull	1½, 1¼, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55

High Shrinkage Staple price as Regular Staple

Type 38 Semidull & Bright $1.09

This product is designed for the pile-fabric trade and is a mixture of deniers (average about 3.0), 1¼" staple.

Type 39 Semidull $.94

This product is designed for *woolen sustem spinning* and is a blend of deniers (average 4.2) with a variable cut length.

Type 39A Semidull $.99

This product is designed for *woolen sustem spinning* and is a blend of predominately fine deniers (average 2.5) with a variable cut length.

Type 39B Semidull $.94

This product is designed for *woolen sustem spinning* and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

Type 72 Semidull $1.08

This product is designed as a blending staple with cotton for skin-contact apparel type of fabrics and is a 1.5 denier, 1½" semidull whitened staple.

Type 75 Semidull $1.08

This product is designed for *Cotton/Rayon System* Spinning and is 2.5 denier, 1½" semidull regular shrinkage staple.

"ORLON SAYELLE"**

Type 21

3.0 denier semidull variable (2½" to 5" average 3¾") staple $1.45
6.0 denier semidull variable (2½" to 5" average 3¾") staple 1.40
6.0 denier semidull tow 470M 1.40

F.O.B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.

*"ORLON" is Dupont's Registered Trade-mark for its Acrylic Fiber.
"ORLON SAYELLE"** is Dupont's Registered Trade-mark for its bi-component Acrylic fiber.

MODACRYLIC

Eastman Chemical Products, Inc.
Tennessee Eastman Co.

Current

"Verel"* Staple and Tow

All items available in both bright and dull luster in standard lengths

Denier	Type A	Type B	Type C	Type D	Type III	Type HB
2.75*	.75	....	....	....	....	....
3	.75	....	....	....	$0.75	$0.75
5	....	$0.75	....	....	....	.75
8	....	.75	....	....	....	.75
12	....	.70	$0.70	$0.70	....	.70
16	.70	.70	.70	.70	....	.70
24	....	....	.75	....	....	....

* cut 1¼" length only

Type A—High crimp with good crimp retention
Type B—High crimp—less permanent than Type A
Type C—Medium crimp—nonpermanent—crimp easily removed
Type D—Low crimp—completely nonpermanent—fiber must be stabilized in dyeing
Type HB—Very high, very permanent crimp
Type F—Fiber with greater denier and length variation than other types
Type III—Controlled shrinkage fiber

Prices are subject to change without notice.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Verel" is a trade-mark of the Eastman Kodak Co.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.

Textile Fibers Dept. Effective December 1, 1959

Dynel Staple & Tow

Natural Dynel	
2, 3, 6, 12 Denier, Staple and Tow	1.10 per lb.
Liner blend, Staple only	.92 per lb.
24 Denier, Staple and Tow	1.05 per lb.
12 Denier, Type 80, Staple and Tow	.85 per lb.
3 Denier Type 63, High Shrinkage, Staple and Tow	1.15 per lb.
Dynel Spun with Colors:	
Blond, Pewter, Gray, Brown, Charcoal, Black	
3 and 6 Denier, Staple and Tow	1.20 per lb.
3 Denier Type 63, High Shrinkage, Staple and Tow	1.30 per lb.

Prices are quoted F.O.B. shipping point, freight prepaid our route, within continental limits United States, excluding Alsaka and Hawaii.

NYLON

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Nylon Staple and Tow

Denier	Type	Staple Lengths	Tow Bundle	1st. Grade Price/Lb.	2nd Grade Staple Only
1.5	200	1⅛"—4½"	None made	$1.24	$1.10
1.5	201	1⅛"—4½"	None made	1.26	1.12
2.3	420	1½" only	None made	1.24	1.10
3.0	231	1⅛"—4½"	385M	1.26	1.12
3.0	100/200	1⅛"—4½"	430M	1.24	1.10
3.0	101/201	1⅛"—4½"	455M	1.26	1.12
4.6	320	1"—6½"	None made	1.24	1.10
6.0	100	1½"—6½"	330M	1.20	1.06
6.0	101	1½"—6½"	345M	1.22	1.08
15.0	100	1½"—6½"	425M	.95	....
15.0	101	1½"—6½"	None made	.97	....
15.0	600	1½"—6½"	425M	.97	....
15.0	601	1½"—6½"	None made	.99	....

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows: 1⅛, 1½, 2, 2½, 3, 4½ and 6½

Types

Type 100 Bright, normal tenacity, not heatset.
Type 101 Bright, normal tenacity, heatset.
Type 200 Semidull, normal tenacity, not heatset.
Type 201 Semidull, normal tenacity, heatset
Type 231 Semidull, normal tenacity, high crimp, heatset.
Type 320 Bright, high tenacity, high modulus, no crimp.
Type 420 Semidull, high tenacity, high modulus, no crimp.
Type 600 Dull normal tenacity, not heatset.
Type 601 Dull normal tenacity, heatset.

These prices are subject to changes without notice.

Terms—Net 30 Days.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

OLEFIN

Beaunit Mills Inc.

Fibers Division Effective November 1, 1960

Polypropylene Bright Staple

Denier	Price per lb.
1.5	$.90
3.0	.90
6.0	.90
15.0	.90

Staple cuts are 1½", 2" and 3".

Other lengths are available on request.

Terms: Net 30 days F.O.B. shipping point. Minimum Freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices subject to change without further notice.

POLYESTER

Beaunit Mills Inc.

Current Prices Vycron Semi-Dul Polyester

	Denier	Price Per Lb.
Staple	1.5	$1.00
Staple	3.0	1.00
Staple Cuts are 1⅛" to 6".		
Tow for Converters	1.5	1.00
(Tow Bundle 200,000 Denier)	3.0	1.00

Spun Dyed Black 15¢ per lb. extra.

"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

"Dacron"** Staple and Tow

Denier	Luster	Type*	Length	Tow Bundle	1st Gr.
1.5	Semidull	35	1¼"-1½"	None made	1.14
1.5	Semidull	54	1¼"-1½"	None made	1.14
1.5	Semidull	64	1¼"-3"	None made	1.24
2.25	Semidull	64	1¼"-4½"	450M	1.24
3.0	Semidull	54	1¼"-4½"	450M	1.24
3.0	Semidull	61	1¼"-4½"	None made	1.24
3.0	Semidull	64	1¼"-4½"	450M	1.24
4.0	Semidull	64	1¼"-4½"	450M	1.24
4.5	Semidull	54	1½"-4½"	450M	1.24
6.0	Semidull	54	1½"-4½"	450M	1.24
6.0	Semidull	61	1½"-4½"	None made	1.24
6.0	Semidull	64	1½"-4½"	450M	1.24

* Type:
Type 35—More Pill Resistant Staple for Cellulosic Bends.
Type 54—Semidull, Normal Tenacity.
Type 61—Industrial Staple having 45% Shrinkage. Not intended for Dyeable Uses.
Type 64—More Pill Resistant Staple, with Greater Dyeing Versatility.

"Dacron" Polyester Color-Sealed Black Staple and Tow

2.25	Color Sealed Black	64	1¼"-4½"	450M	1.44
3.0	Color Sealed Black	64	1¼"-4½"	450M	1.44

F. O. B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.

** Dupont's Registered Trade-mark for its Polyester Fiber.

Eastman Chemical Products, Inc.

Tennessee Eastman Co. Current

"Kodel"*

Denier	Types Semi-Dull HM	I	II	S (Black Only)
1.5 staple only	$1.14	$1.14	$1.14	....
2.25 staple and tow	....	....	1.24	$1.44
3.0 "	....	....	1.24	1.44
4.5 "	....	....	1.24	1.44
6.0 "	....	....	1.24	....
8.0 "	....	....	1.24	....

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Kodel" is a trade-mark of the Eastman Kodak Company.

Celanese Fibers Company

Current Prices Effective April 14, 1961

Fortrel Polyester Staple and Tow

Staple

Denier	Luster	Price
1.5	Semi-dull	1.14
3	Semi-dull	1.24
4.5	Semi-dull	1.24
6	Semi-dull	1.24

Staple lengths 1½", 2" and 3".
All staple packaged in 500 pound bales.

Tow

Denier	Luster	Price
3	Semi-dull	1.24
4.5	Semi-dull	1.24
6	Semi-dull	1.24

Total denier of all tow is 225,000.
All tow packaged in 300 to 400 pound cartons.
TERMS: Net 30 days. F.O.B. destination—Freight prepaid our route within the continental limits of the United States, excluding Alaska. Prices subject to change without notice.

VINYON

American Viscose Corp. Effective October 1, 1956

Avisco Vinyon Staple

1.5 denier 1½" Unopened	$.90 per lb.
3.0 denier ½" Unopened	.80 per lb.
3.0 denier 1¼" Unopened	.80 per lb.
3.0 denier 1¼" Opened	.90 per lb.
3.0 denier 2" Opened	.90 per lb.
5.5 denier 1" Opened	.90 per lb.
5.5 denier 1½" Unopened	.80 per lb.

Terms: Net 30 days.

SARAN

The National Plastics Products Company—Fibers Division Odenton, Maryland

Current Prices: Saran Staple

Type	Denier	Natural	Colors
2Y—Upholstery	22	$0.70	$0.75
2Y—Upholstery	16	.74	.79
3Q—Industrial Fabrics	22	.68	.72
1C—Carpets	22	.68	.72
1M—Mops	22	.68	.72

In any staple length 1¼ to 6". Also 45 denier, 7" cut.
F.O.B. Odenton, Maryland.
Terms: net 30 days.

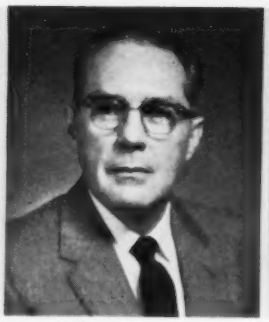
GLASS YARN

Owens Corning Fiberglas Corp.

A Decorative Continuous Yarn

DE 150 1/0 1.0 TPI ..... 53¢ per lb.
F.O.B. Freight Allowed.

C. W. Coker, Jr.



R. B. White

P. C. Coggeshall

New Sonoco Vice Presidents

A number of management changes at Sonoco Products Co. were announced recently by C. W. Coker, president, from his office in Hartsville, S. C. Named to the board of directors as a member to fill the unexpired term of the late J. L. Coker was C. W. Coker, Jr. Three new vice presidents were elected: C. W. Coker, Jr., administration, P . C. Coggeshall, administration and R. B. White, production.

C. W. Coker, Jr., joined the company in 1958. He is a graduate of Princeton University and holds an M.A. degree from Harvard School of Business. Coggeshall joined Sonoco in 1939, and his most recent duties were as director of purchasing. He is a graduate of the University of South Carolina and Harvard Business School. R. B. White, a graduate of Clemson College, joined the company in 1928. His most recent position has been as production manager.

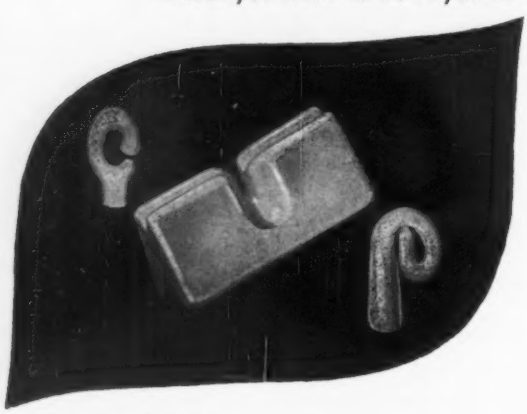
Scott & Williams' Promotions

George H. Miller, executive vice president of Scott & Williams, Inc., has been elected to the board of directors, according to a recent announcement by Richard Whitehead, president. It was also revealed that the following were made officers of the company which manufactures knitting machines: John A. Currier, assistant vice president, manufacturing; John Ross, assistant vice president, research and development; Stanley R. Shelmire, assistant vice president, research and development. It was made known in addition that David H. Schofield was appointed general superintendent.

David H. Schofield

John A. Currier

Nothing is impossible
unless you have to do it yourself.



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LAMBERTVILLE THREAD GUIDES

can't make a guide that lasts *forever*. We *can* and do produce long wearing dimensionally accurate guides that give the most economical and satisfactory service. Available in white or 'Durablu' finish. Write for catalog and samples.

Lambertville Ceramic
AND MANUFACTURING COMPANY
LAMBERTVILLE, NEW JERSEY

LAMBERTVILLE: YOUR GUIDE TO BETTER OPERATIONS!

MAN-MADE-FIBER ENGINEER

International Engineering Firm specializing in man-made fibers and films with headquarters in suburban area just outside of New York has opening for young engineer preferably with an ME Degree. Excellent growth potential. Previous cost estimating experience or training in the Man-Made-Fiber Industry desirable, but not essential.

Opening in Sales Proposal Department to assist Manager requires good writing ability. Please submit complete resume with full details and present earnings to:

VON KOHORN INTERNATIONAL CORPORATION

VON KOHORN INTERNATIONAL BUILDING

WHITE PLAINS, NEW YORK

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7 Inches	49.00
8 Inches	52.00

WANTED

For Man-Made Fiber Industry

SENIOR ENGINEER

To supervise activities of drafting office, experienced in machine design in cellulosic and/or synthetic fiber field. Salary $11,000 to $14,000 depending on experience.

BOX 851, MODERN TEXTILES MAGAZINE
303 Fifth Ave., New York 16, N. Y.

DACRON, NYLON, RAYON & ACETATE BOUGHT AND SOLD

YARNS

BERTNER YARN COMPANY
Empire State Bldg. **New York City**
Oxford 5-1170

WANTED

For Polyester Fiber Plant

Experienced Engineers and Chemists.
Annual salary: Juniors $12,000 to $15,000 and Seniors: $15,000 to $20,000.
Must be willing to relocate.

BOX 852, MODERN TEXTILES MAGAZINE
303 5th. Ave., New York 16, N. Y.

AVAILABLE

TECHNICAL GUIDANCE by MARTIN H. GURLEY, Jr.
in Development and Use of
Fibers and Fibrous Materials

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Did You Read The Announcement on Page 36?

Calendar of Coming Events

Jul. 10-14—Gordon Research Conferences on Textiles. Colby Junior College, New London, N. H.
Jul. 10-12—Lowell Textile Institute, textile workshop on dyeing and finishing technology and textile testing. Lowell, Mass.
Jul. 27-Aug. 1—IUPAC International Symposium on Macromolecular Chemistry. Queen Elizabeth Hotel, Montreal, Canada.
Aug. 29—Textile Salesmen Association fall member-guest golf tournament. Ridgewood Country Club, Ridgewood, N. J.
Sep. 6—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Sep. 7-8—Combed Yarn Spinners Association annual meeting. The Greenbrier, White Sulphur Springs, W. Va.
Sep. 11-15—Instrument Society of America, Instrument-Automation conference and exhibit. Sports Arena, Los Angeles, Calif.
Sep. 12-14—Southeastern Maintenance & Engineering Show and Seminar. Greensboro, N. C.
Sep. 14-15—Am. Gas Assoc. textile processing symposium. Clemson House, Clemson, S. C.
Sep. 21-22—Carded Yarn Association, annual convention. The Cloister, Sea Island, Ga.
Sep. 21-22—Southern Textile Methods & Standards Association. Clemson House, Clemson, S. C.
Sep. 21-22—Chattanooga Yarn Association outing. Read House, Chattanooga, Tenn.
Sept. 27-29—AATCC National Convention, Hotel Statler, Buffalo, N. Y.
Sep. 27-30—"Index '61" 3rd Virginia biennial state-wide industrial exposition. Roanoke, Va.
Oct. 4—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Oct. 7—Alabama Textile Operating Executives, fall meeting. Thach Auditorium, Auburn, Ala.
Oct. 11-13—Quartermaster Association national convention. Biltmore Hotel, Atlanta, Ga.
Oct. 11-13—Fiber Society meeting. West Point, N. Y.
Oct. 11-21—International Knitting Machinery Exhibition. Belle Vue Hall, Manchester, England.
Oct. 14—South Carolina Div. STA. Clemson, S. C.
Oct. 14—Textile Operating Executives of Georgia. Georgia Tech, Atlanta, Ga.
Oct. 26—Textile Salesmen Association annual fall luncheon. Statler Hilton Hotel, New York, N. Y.
Nov. 1—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Nov. 1-2—ASME Textile Engineering Div. annual meeting. Massachusetts Inst. of Technology, Cambridge, Mass.
Nov. 8-9—Chemical Finishing Conference. Sheraton Park Hotel, Washington, D. C.
Nov. 13-15—Narrow Fabrics Institute, Inc. meeting. Statler-Hilton, New York, N. Y.
Dec. 6—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.

1962
Jan. 3—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.

Index to Advertisers

(See previous or subsequent issues)

Allen Beam Co.
Allen Warper Co.
Allentown Bobbin Works, Inc. 65
Allied Chemical Corp.
National Aniline Div. 18, 32, 33
Althouse Chemical Co.
American Bemberg 9
American Cyanamid Co.
American Enka Corp. 11
American Lava Corp. IV Cover
American Viscose Corp.
Apex Chemical Co., Inc.
Arkansas Co., Inc.
Atlantic Yarn Corp. 61
Atlas Electric Devices Co.

Barber-Colman Co.
Beaunit Mills, Inc.
Borregaard Co., Inc. The
Butterworth & Sons Co., H. W.

Celanese Corp. of America
Fibers Div. 15
Ciba Company, Inc.
Chemstrand Corp.
Cocker Machine & Foundry Co.
Collins Supply & Equipment Co.
Corn Products Sales Co.
Courtaulds (Alabama), Inc.
Crompton & Knowles Corp. 14
Curlator Corp.

Dary Ring Traveler Co.
Davison Publishing Co.
Dobson & Barlow, Ltd. III Cover
Dommerich & Co., Inc., L. F.
Dow Chemical Co., The
Draper Corp. II Cover
Du Pont de Nemours & Co., E. I.
Dyestuffs Department
Textile Fiber Department

Eastman Chem. Pro. Inc.
Englehard Industries, Inc.
Baker Platinum Div.
Enjay Chemical Co.

Fabrionics Corp.
Fiske Bros. Refining Co.
Lubriplate Division
Fletcher Industries
Foster Machine Co. 12, 13
Electronic Sales Div.
Franklin Process Co.

Gaston County Dyeing Machine Co. 27
Globe Dye Works Co. 54
Goodyear Tire & Rubber Co.
Chemical Div.
Gulf States Utilities Co.

Hart Products Corp.
Heany Industrial Ceramic Corp. 6
Heresite & Chemical Co.
Herr Mfg. Co., Inc. 7
Hoffner Rayon Co.
Howard Bros.

Industrial Rayon Corp.
Iselin-Jefferson Financial Co. Inc.

Kenyon-Piece Dyeworks, Inc.

Lambertville Ceramic & Mfg. Co. 68
Laurel Soap Mfg. Co. 63
Leatex Chemical Co.
Leesona Corporation 16, 17
Lindly & Co., Inc., (See Foster Machine Co.)
Lohrke Textiles, Inc. 31
Loper Company, Ralph E.
Lubriplate Division
Fiske Bros. Refining Co.

Madden's Textile Ceramics, Inc.
Maguire & Co., John P. 65
Malina Company 61
Manivet S. A.
McBride Co., Inc., E. J.
McCandless Corp.
Milton Machine Works, Inc.
Mitchell-Bissell Co. 29

National Drying Machinery Co. 23
National Starch & Chem. Corp.
Nopco Chemical Co.

Onyx Chemical Corp. 8

Perkins & Son, Inc., B. F.
Proctor & Schwartz, Inc.
Putnam Chemical Corp.

Reiner, Inc., Robert
Reliable Sample Card Co., Inc. 57
Riordon Sales Corp., Ltd. 34
Roberts Company 5
Rusch & Co.

Saco-Lowell Shops
Sargent's Sons Corp., C. G.
Scholler Bros.
Scott & Williams, Inc.
Scott Testers, Inc.
Simco Co., Inc.
Sonoco Products Co. 3
Southern Shuttle Div.
Steel Heddle Mfg. Co.
Standard Chemical Products, Inc.
Steel Heddle Mfg. Co.

Talcott, James, Inc.
Taylor-Stiles & Co.
Tennessee Corp.
Terrell Machine Co.
Textile Machine Works
Traphagen School of Fashion
Turbo Machine Co. 25

Union Carbide Chem. Co.
Div. Union Carbide Corp.
Textile Fibers Dept.
U.S. Textile Machine Co.

Von Kohorn International Corp. 68

Walton & Lonsbury 53
West Point Foundry & Mach. Co.
Whitin Machine Works 10
Whitinsville Spinning Ring Co.

BUSINESS SERVICE

Bertner Yarns Co. 69
Chemstrand Corp. 69
Gurley, Jr., Martin H. 69

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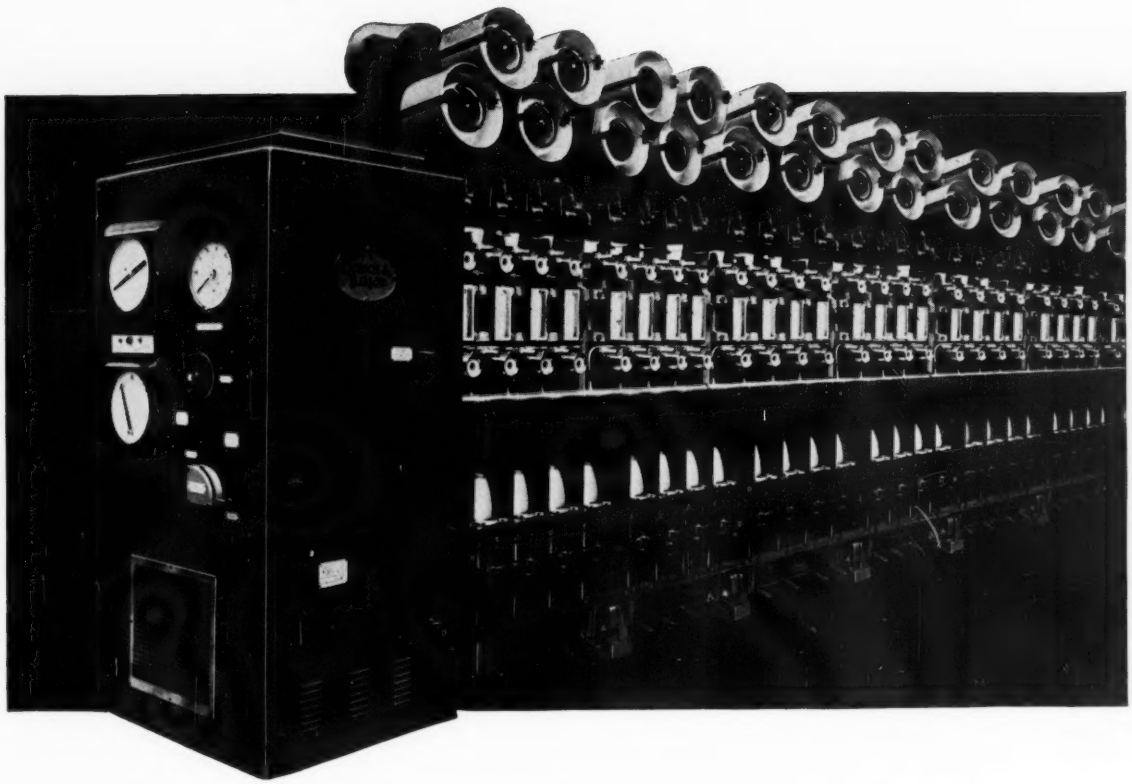

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